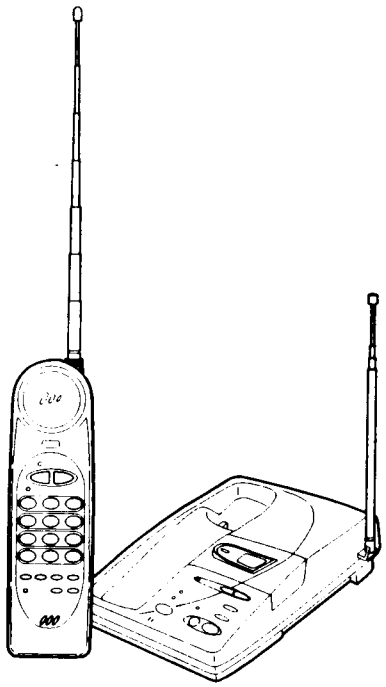
SANYO

FILE NO.

Service Manual

Cordless Telephone Answering System

CLA-1380 (NZ)



Contents

PRODUCT CODE No.
178 585 93

Specifications	1	Voltages of IC and Transistor	49
Operation	2	Block Diagram (Handset)	53
Removal	13	Schematic Diagram (Handset)	54
Tape Adjustments	16	Wiring Diagram (Main of Handset)	56
Adjustment	18	Block Diagram (Base Station)	58
Exploded View (Handset)	25	Wiring Diagram (Control of Handset)	60
Exploded View (Base Station)	26	Schematic Diagram (Base Station)	62
Parts List	27	Wiring Diagram (Control of Base Station)	64
IC Description	33	Wiring Diagram (OGM)	65
Circuit Description	36	Wiring Diagram (Main of Base Station)	66
Trouble Shooting Guide	40	Schematic Diagram (OGM & Control)	70

REFERENCE No. SM580489

SPECIFICATIONS

• CORDLESS TELEPHONE

Transmitting frequency
- Base station : 30.075 - 30.300 MHz
- Handset: 39.775 - 40.000 MHz

Receiving frequency ..
- Base station : 39.775 - 40.000 MHz
- Handset: 30.075 - 30.300 MHz

Noise Reduction ..... Super-Compander Ⅲ
Speaker Control ..... yes (base station)
Memory Dial 10-number
Channel Access ..... 10-channel (Manual scan)
Security Codes ..... 10 million
Continuous Standby ... 1-week
Auto Standby /
Quick Talk Access yes
Intercom ..... yes
Paging ..... yes
Flash ..... yes
Instant Tone ..... yes
Ring level control ..... yes (handset and base station)
Hearing-Aid Compatible yes
Wall-Mountable ..... yes

• ANSWIRING SYSTEM

Recording System ..... Micro Cassette
Security Codes for
Remote Control ..... 3 (Factory preset)
Toll Saver/Ring Delay ..... 2 / 4 / auto
Handset Remote ..... yes
Auto message erase ..... yes
Announcement only ..... yes
Extension Phone disconnect yes
Message Recording Time .. max 3 minutes each
Voice Activated Recording .. yes
Calling Parity control ..... ON / OFF
remote control Functions ... AUTO REW / PLAY,
OGM CHANGE,
AUTO RESET,
REVIEW ,
FAST FORWARD,
TURN ON / OFF,
and ROOM MONITOR

• GENERAL

Power Source .....
- Base station : Local current with AC adaptor
  AC 230 - 240 V / 50 Hz,
  DC 9 V
- Handset: Ni-Cd battery : 3.6 V, 270 mAH

Dimensions .....
- Base station : 172 (W) x 53 (H) x 227 (D) mm
- Handset: 58 (W) x 205 (H) x 50 (D) mm

Weight .....
- Base station : 694 g (without adaptor)
- Handset: 265 g (including batteries)

Accessories ..... AC adaptor and plug adaptor
Telephone line cord
Wall mount Hanger
Instruction manual
Microcassette Tape
Number Memory Index Sheet
Battery Pack

• STANDARD DTMF DIALING TONE

Digit (Symbol)	Frequency (Hz)	
1	697	1209
2	697	1336
3	697	1477
4	770	1209
5	770	1336
6	770	1477
7	852	1209
8	852	1336
9	852	1477
0	941	1209
✳	941	1336
#	941	1447

Specifications subject to change without notice.

INTRODUCTION

Thank you for purchasing the Sanyo CLA-1380AUS.
The Sanyo CLA-1380AUS is a cordless telephone and answering system in one compact unit and has many convenient features.

- **10-Channel Access** - If noise or other interference occurs during a conversation, press the SCAN button to select a different channel. (See page 20.)
- **10-Number Auto Dial** - You can store up to 10 frequently called numbers for easy recall. Once stored, these numbers can be dialed by using the MEMORY button and the 0-9 buttons on the handset. (See page 22.)
- **Intercom** - Using the handset and base station, you can have an intercom conversation. (See pages 25 - 26.)
- **Outgoing Message (OGM) IC Recording** - Your outgoing message, which asks callers to leave a message, is recorded on an integrated circuit. This allows callers to leave a message immediately after hearing your outgoing message, instead of having to wait for the message tape to wind to the end of the last recorded message.
  Your outgoing message is also recorded at the beginning of the message tape as a backup. If there is a power failure, the outgoing message is transferred automatically from the message tape to the IC memory when the power is restored.
- **Remote Message Retrieval** - You can retrieve your incoming messages from another location using any touch-tone telephone which has a "continuous tone" signal. (See page 33.)
- **Switchable Tone/Pulse Dialing** - The CLA-1380AUS can be operated on tone or pulse dialing systems. When used with pulse dialing telephone lines, you can dial a number, then switch to tone dialing temporarily to access answering machines by remote control, or to access special telephone services such as electronic banking.

This SANYO cordless telephone/answering system is Hearing-Aid compatible.

Notice:
This unit uses radio communication between the handset and the base unit and may not ensure privacy of communication. Other devices, including other cordless telephones, may interfere with the operation of the cordless telephone section of this unit or cause noise during operation. Cordless telephones must not cause interference to any licensed radio service.

HOW TO GET THE BEST PERFORMANCE

Please read these hints carefully to get the best performance from your cordless telephone.

Rechargeable battery
- Charge the rechargeable battery for a **full 12 hours** before using the cordless telephone for the first time. (See page 8.)
- Clean the battery charging terminals on the handset and the base station **once a month** by wiping them with a soft cloth moistened lightly with isopropyl alcohol.

Security code
This cordless telephone has a digital security system with 10 million possible codes. This system helps to prevent unauthorized use of your telephone line by another cordless telephone.
If you hear a high-pitched beep tone, or no dial tone, this means that the security code has been lost. If this occurs, reset the security code as described on page 11.
- If a power failure occurs, or if the battery is replaced, the security code must be reset. (See page 11.)

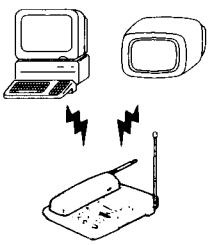
Operating range
The operating range may vary depending on the operating conditions, location and distance between the base station and the handset. For the best possible performance, locate the base station in the **highest** room feasible in your home or office, and as close to the **centre** of the desired operating area as possible.
For the best performance under normal operating conditions, extend the base station antenna fully.
Since cordless telephones use radio frequencies for communication, certain obstacles between the base station and the handset may reduce the operating range.
The following are some examples.
- Concrete walls
- Tile walls (typically used in bathrooms)
- Large metal objects (such as refrigerators, metal cabinets, etc.)
- Metal shielding inside of walls
- Metal fences
- Objects which obstruct radio frequencies

NOTE: If you are beyond the operating range of the telephone, the END button or SCAN button does not operate properly. If this occurs, move closer to the base station and try again.

HOW TO GET THE BEST PERFORMANCE (continued)

Interference
If you have more than one cordless telephone in your home or office, we recommend that you separate the telephones from each other as much as possible to avoid interference. If interference does occur, change the operating channel on one of the telephones by pressing the **SCAN** button, or lower the base station antenna, thereby reducing its range.

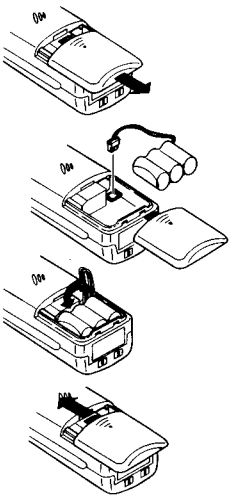
Noise
Electrical pulse noise is present in most homes at one time or another. This is most intense during electrical storms. Certain kinds of electrical equipment such as TVs, fluorescent lamps, halogen lamps, microwave ovens, light dimmers, motors, fans, etc., also generate noise pulses. Because radio frequency transmissions are susceptible to these pulses, on occasion you may hear them in your handset. Generally they are a minor annoyance and should not be interpreted as a defect in your system.



INITIAL SETUP

INSTALLING THE BATTERY PACK

1. Remove the battery compartment lid.
2. Plug the battery pack cord into the connector inside the battery compartment. Place the battery pack in the battery compartment.
3. Replace the lid by sliding it up over the pack until it is firmly in place.

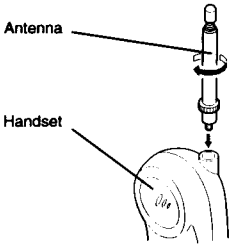


NOTES:
- When you replace the battery pack, press the END button before step 1 above.
- If the battery pack is replaced, the security code and any stored numbers are cleared.
- When you replace the battery pack, pull out the plug of battery pack vertically.

INSTALLING THE ANTENNA

Install the antenna to the handset by rotating it clockwise as shown.

For the best overall performance the telescopic rod antenna is recommended. Using the optional rubber antenna may reduce performance and operational range

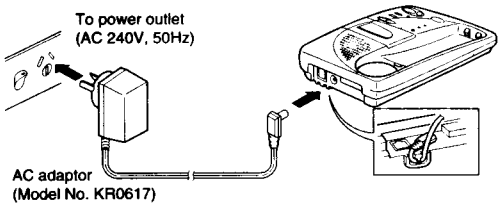


INITIAL SETUP (continued)

AC CONNECTION

1. Insert the small plug on the end of the AC adaptor cord into the 9V DC jack on the back of the base station.
2. Plug the AC adaptor into an AC wall outlet.

NOTE:
If 6 long beeps sound when the AC connections are made, the message tape has not been inserted.



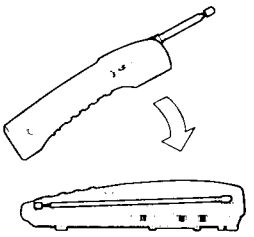
NOTE:
USE ONLY SANYO AC ADAPTOR MODEL NO. KR0617
(APPROVAL NO. Q94113)

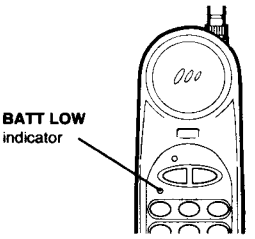
INITIAL SETUP (continued)

CHARGING THE BATTERY PACK

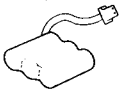
IMPORTANT NOTE:
The battery pack must be charged for a full 12 hours before the cordless phone is used for the first time. Do not use the phone before charging the battery pack.

1. Place the handset on the base station and charge it for a full 12 hours.
2. In order to verify that the handset battery is fully charged...
   a) Remove the handset from the base station.
   b) Check to see that the **BATT LOW** indicator is off.
   NOTE:
   If the **BATT LOW** indicator lights, even after charging for a full 12 hours, refer to the troubleshooting guide on page 41.
   c) After initial setup, recharge the handset battery by placing it on the base station cradle whenever the **BATT LOW** indicator lights.





Replacement battery packs are available from an authorized Sanyo service center.
Replacement battery pack part number: SANYO 3N-270AA
Use of other brand or type batteries may cause serious damage or equipment malfunctions.



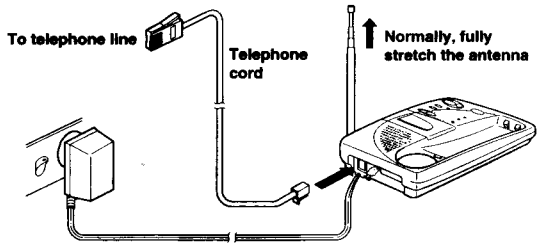
SANYO 3N-270AA

NOTE:
When batteries are discharged, they must be disposed of in a safe manner that complies with all applicable laws.

INITIAL SETUP (continued)

PHONE LINE CONNECTION

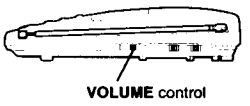
NOTE:
Please make sure that the handset battery is fully charged before connecting the phone line cable.



WARNINGS
- This cordless telephone may, on some longer lines, have difficulty handing over to another device connected to the same line.
- Immediately disconnect the equipment should it become physically damaged, and arrange for its disposal or repair.
- The operation of this equipment on the same line as telephones or other equipment with audible warning devices or automatic ring detectors will give rise to bell tinkle or noise and may cause false tripping of the ring detector. Should such problems occur, the user is not to contact Telecom Faults Service.

INITIAL SETUP (continued)

BASE STATION VOLUME CONTROL
Set the VOLUME control to the correct position to give you the desired sound level. If you set the VOLUME control to the minimum position, no sound is heard from the speaker.



INITIAL SETUP (continued)

SECURITY CODE

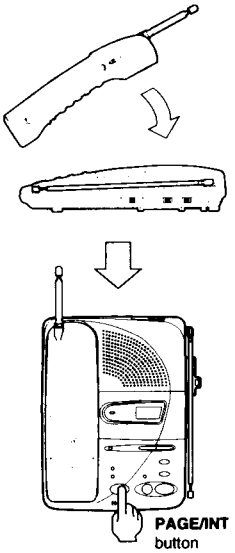
The CLA-1380AUS has a digital security system with 10 million possible codes. This system helps prevent the unauthorized use of your telephone line by another cordless telephone user.
A security code is set automatically the first time the handset is placed in the base station cradle. When the code is set, a beep sounds.
The security code must be reset if the battery pack is replaced or the power is interrupted.

How to reset your security code

1. Place the handset in the cradle of the base station.
2. Press the PAGE/INT button on the base station (within 3 seconds). A beep sounds within 30 seconds. The security code is now set.

   To change your security code at any time, simply repeat the above steps. A new security code is automatically set each time.

NOTES:
- It is necessary to change the security code if;
  - There is a power failure.
  - The battery pack is changed.
  - The battery pack is exhausted.
  - The AC adaptor is disconnected.
- If the security code has been cleared, calls cannot be made until the code is reset.



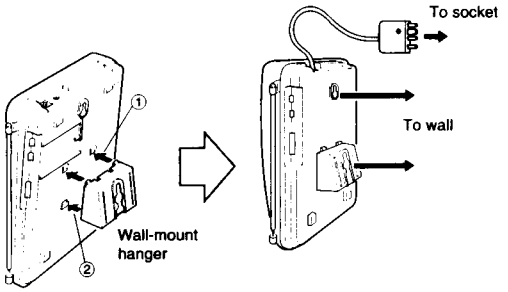
PAGE/INT button

INITIAL SETUP (continued)

WALL MOUNTING (if desired)

To mount the base station on a wall

1. Insert the hooks of the hanger in the holes in the back of the base station. Then push them in the direction of arrow ② as shown.
2. Connect the cord.
3. Mount the base station on the wall.



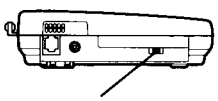
NOTES:
- This cordless telephone may not be compatible with certain multiple line PBX systems.
- Avoid locations near electrical equipment such as computers, TVs, fluorescent lamps, halogen lamps or microwave ovens. These may cause interference or reduce the operating range of the cordless telephone.

INITIAL SETUP (continued)

ANSWERING SYSTEM

RING DELAY SWITCH (2/4/AUTO)

The RING DELAY switch lets you choose the number of times the telephone rings before a call is answered.
- 2 position:
  Incoming calls are answered on the second ring.
- 4 position:
  Incoming calls are answered on the fourth ring.
- AUTO (Toll Saver) position:
  The first incoming call is answered on the fourth ring, and later calls are answered on the second ring. If you call your number from another phone and hear three rings, you know you have no messages and can hang up and save the cost of the call. When you reset the unit to the auto answer mode, the unit again answers the first new call on the fourth ring.



RING DELAY switch

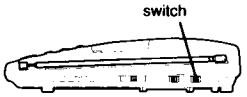
CPC ON/OFF

The telephone systems in many areas provide a disconnect pulse when a caller hangs up. If the CPC/ANS.ONLY switch (located on the side of the base station) is set to CPC ON, the CLA-1380 stops recording and returns to the auto answer mode when this disconnect pulse is received. This eliminates annoying recordings of dial tones between messages.
The CPC/ANS.ONLY switch should be kept in the CPC OFF position if:
- Your telephone is equipped with call waiting service
- You have a noisy telephone exchange
  (If the switch is not in the CPC OFF position, your calls may be disconnected prematurely.)

ANSWER ONLY

If you do not want messages to be received and recorded, set the switch to the ANS.ONLY position. The unit then plays your outgoing message but does not record incoming messages.

CPC/ANS.ONLY switch



INITIAL SETUP (continued)

RECORDING AN OUTGOING MESSAGE

Before you record your outgoing message, decide what you are going to say and write it down.

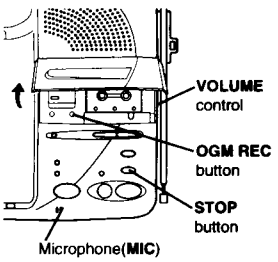
SAMPLE OUTGOING MESSAGE

"Hello. This is (your name). Please leave your name and telephone number and a brief message, and your call will be returned as soon as possible. Thank you."

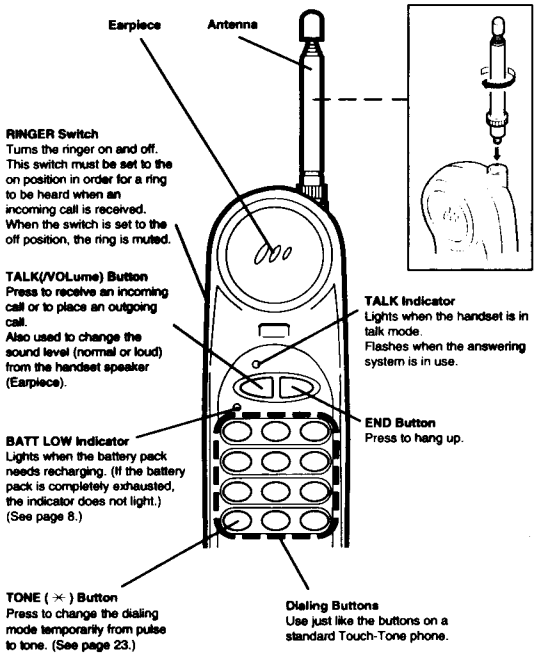
NOTES:
- The message tape must be inserted before an outgoing message can be recorded. This ensures that there is a backup tape recording of your outgoing message in the event of a power failure. (See "POWER FAILURE", page 40.)
- If you attempt to record an outgoing message without a message tape inserted, 3 long beeps sound.
- Your outgoing message can be up to approximately 16 seconds in length. The IN USE indicator flashes to alert you during the last 4 seconds of recording time.
- If you attempt to record an outgoing message more than 16 seconds in length, the answering system automatically stops recording and enters the auto answer mode.
- When outgoing message recording is completed, the unit switches to the auto answer mode automatically. If you want to cancel the auto answer mode, press the STOP button.
- If an incoming call is received while you are recording your outgoing message or while the backup tape recording is being made, your outgoing message is erased. If this happens, record your outgoing message again.
- When you replace the message tape, you must record your outgoing message again.

To record an outgoing message

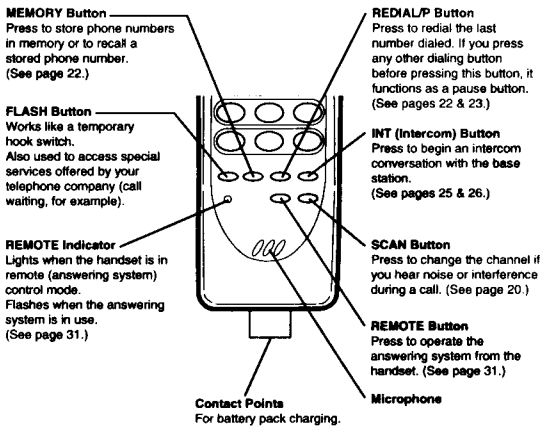
1. Press the STOP button.
2. Set the VOLUME control to the mid position.
3. Press and hold the OGM REC button for approximately 1 second until a beep sounds. The IN USE indicator lights.
4. When you hear the beep tone, record your message using the built-in microphone.
5. Press the OGM REC button again to end recording. The IN USE and ANSWER indicators flash alternately, and your outgoing message plays back automatically. (A backup recording of your outgoing message is made automatically on the message tape.)



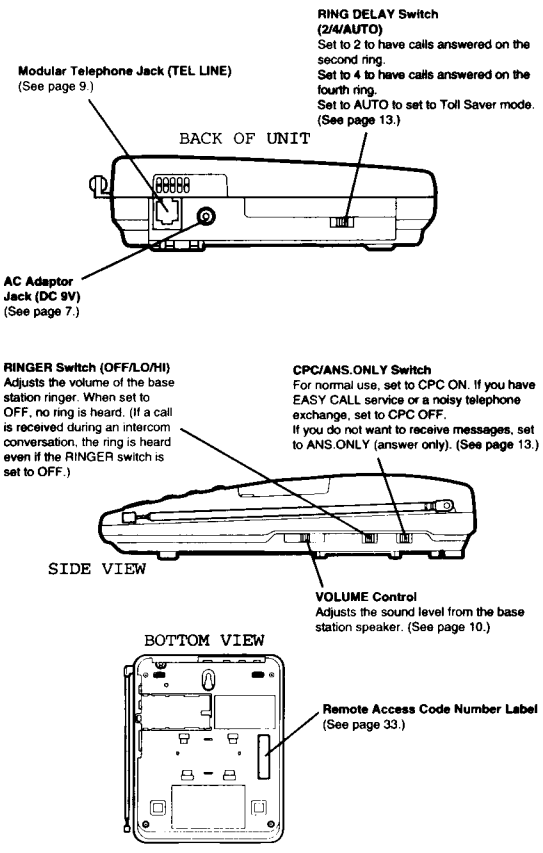
HANDSET CONTROLS


Earpiece
Antenna
RINGER Switch
Turns the ringer on and off. This switch must be set to the on position in order for a ring to be heard when an incoming call is received. When the switch is set to the off position, the ring is muted.
TALK(/VOLume) Button
Press to receive an incoming call or to place an outgoing call.
Also used to change the sound level (normal or loud) from the handset speaker (Earpiece).
BATT LOW Indicator
Lights when the battery pack needs recharging. (If the battery pack is completely exhausted, the indicator does not light.)
(See page 8.)
TONE (*) Button
Press to change the dialing mode temporarily from pulse to tone. (See page 23.)
TALK Indicator
Lights when the handset is in talk mode.
Flashes when the answering system is in use.
END Button
Press to hang up.
Dialing Buttons
Use just like the buttons on a standard Touch-Tone phone.

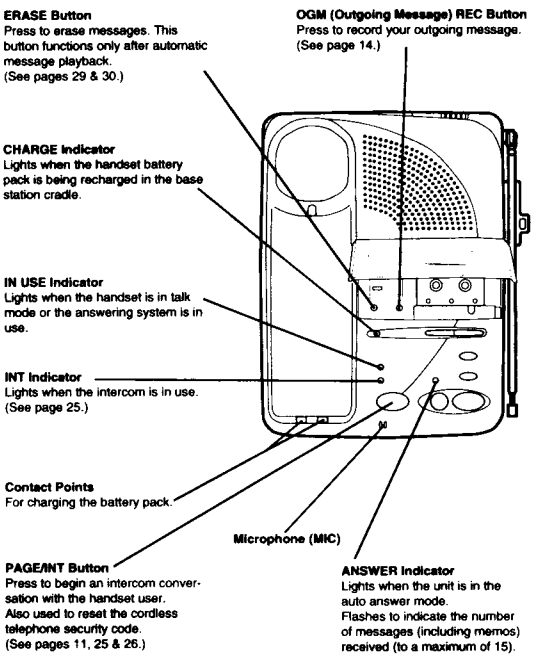
HANDSET CONTROLS (continued)


MEMORY Button
Press to store phone numbers in memory or to recall a stored phone number.
(See page 22.)
FLASH Button
Works like a temporary hook switch.
Also used to access special services offered by your telephone company (call waiting, for example).
REMOTE Indicator
Lights when the handset is in remote (answering system) control mode.
Flashes when the answering system is in use.
(See page 31.)
Contact Points
For battery pack charging.
REDIAL/P Button
Press to redial the last number dialed. If you press any other dialing button before pressing this button, it functions as a pause button.
(See pages 22 & 23.)
INT (Intercom) Button
Press to begin an intercom conversation with the base station.
(See pages 25 & 26.)
SCAN Button
Press to change the channel if you hear noise or interference during a call. (See page 20.)
REMOTE Button
Press to operate the answering system from the handset. (See page 31.)
Microphone

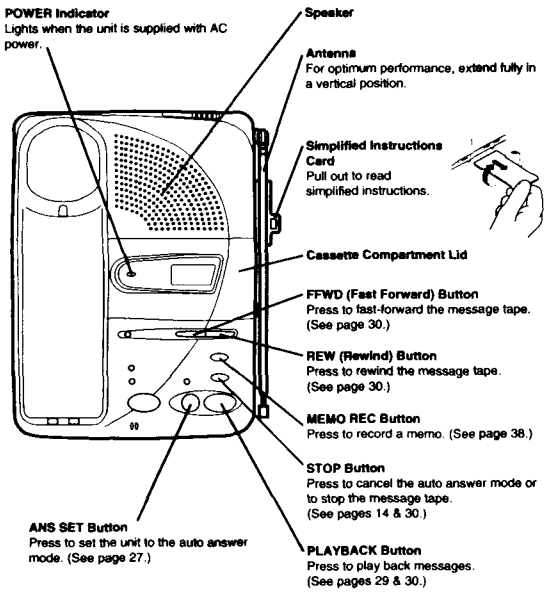
BASE STATION CONTROLS


Modular Telephone Jack (TEL LINE)
(See page 9.)
RING DELAY Switch (2/4/AUTO)
Set to 2 to have calls answered on the second ring.
Set to 4 to have calls answered on the fourth ring.
Set to AUTO to set to Toll Saver mode.
(See page 13.)
BACK OF UNIT
AC Adaptor Jack (DC 9V)
(See page 7.)
RINGER Switch (OFF/LO/HI)
Adjusts the volume of the base station ringer. When set to OFF, no ring is heard. (If a call is received during an intercom conversation, the ring is heard even if the RINGER switch is set to OFF.)
CPC/ANS.ONLY Switch
For normal use, set to CPC ON. If you have EASY CALL service or a noisy telephone exchange, set to CPC OFF.
If you do not want to receive messages, set to ANS.ONLY (answer only). (See page 13.)
SIDE VIEW
VOLUME Control
Adjusts the sound level from the base station speaker. (See page 10.)
BOTTOM VIEW
Remote Access Code Number Label
(See page 33.)

BASE STATION CONTROLS (continued)

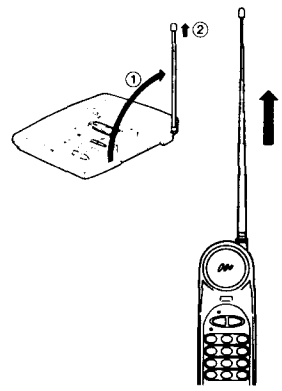

ERASE Button
Press to erase messages. This button functions only after automatic message playback.
(See pages 29 & 30.)
OGM (Outgoing Message) REC Button
Press to record your outgoing message.
(See page 14.)
CHARGE Indicator
Lights when the handset battery pack is being recharged in the base station cradle.
IN USE Indicator
Lights when the handset is in talk mode or the answering system is in use.
INT Indicator
Lights when the intercom is in use.
(See page 25.)
Contact Points
For charging the battery pack.
Microphone (MIC)
PAGE/INT Button
Press to begin an intercom conversation with the handset user.
Also used to reset the cordless telephone security code.
(See pages 11, 25 & 26.)
ANSWER Indicator
Lights when the unit is in the auto answer mode.
Flashes to indicate the number of messages (including memos) received (to a maximum of 15).

BASE STATION CONTROLS (continued)


POWER Indicator
Lights when the unit is supplied with AC power.
Speaker
Antenna
For optimum performance, extend fully in a vertical position.
Simplified Instructions Card
Pull out to read simplified instructions.
Cassette Compartment Lid
FFWD (Fast Forward) Button
Press to fast-forward the message tape. (See page 30.)
REW (Rewind) Button
Press to rewind the message tape. (See page 30.)
MEMO REC Button
Press to record a memo. (See page 38.)
STOP Button
Press to cancel the auto answer mode or to stop the message tape. (See pages 14 & 30.)
ANS SET Button
Press to set the unit to the auto answer mode. (See page 27.)
PLAYBACK Button
Press to play back messages. (See pages 29 & 30.)

CORDLESS TELEPHONE OPERATION

BEFORE MAKING A CALL

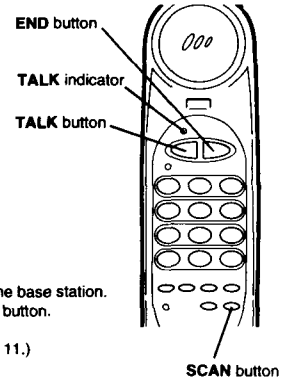


1. Fully extend the antenna on the base station.
2. Take the handset to the desired location.
3. Fully extend the antenna on the handset.
4. Press the TALK button. Make sure that you get a dial tone and the TALK indicator lights.
5. Make a call.
6. Press the END button to return the handset to the standby mode.

NOTE:
If the phone does not work properly, check the system connections and the operating range. (If the BATT LOW indicator is lit, charge the handset.) See page 8.

10-CHANNEL ACCESS

The CLA-1380AUS is capable of operating on 10 different channels If you experience interference during a call, simply select a different channel by pressing the SCAN button.



NOTE:
When there is excessive signal noise or interference, pressing the SCAN button may not improve signal quality. If conversation becomes impossible, follow the instructions below:

1. Place the handset in the cradle of the base station.
2. Lift the handset and press the END button.
3. Press the SCAN button.
4. Reset the security code. (See page 11.)

CORDLESS TELEPHONE OPERATION (continued)

PLACING A CALL

1. Press the TALK button (or pick up the handset from the base station). The TALK indicator lights.
2. Dial the number you want to call.
   If you make an error in dialing the number, press the END button, then press the TALK button to get a dial tone.
3. Press the END button to hang up (or return the handset to the base station cradle).

AUTO STANDBY

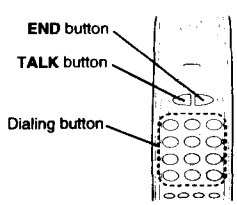
After finishing a call, you can hang up by returning the handset to the base station cradle. The handset automatically switches from talk mode to standby mode. This feature lets you use the handset like a regular corded telephone (without pressing the END button). To answer the next call, simply pick up the handset and talk.

NOTE:
When you remove the handset from the base station cradle, the phone automatically enters the talk mode. (This means that if someone tries to call you the line will be busy.) To return to standby mode, press the END button.

ANSWERING AN INCOMING CALL

1. Press the TALK button (or pick up the handset from the base station). The TALK indicator lights.
2. Talk.
3. Press the END button to hang up (or return the handset to the base station).

NOTES:
- If the RINGER switch is set to the off position, no ring is heard when an incoming call is received.
- The cordless handset may ring slightly after a corded telephone connected to the same phone line.
- If the handset is too far away from the base station, pressing the END button may not hang up a call. If this happens, come closer to the base station and press the END button, or return to the base station and place the handset in the base station cradle.



REMEMBER:
Your handset battery needs recharging when you hear a beep every 3 seconds during a conversation. (The **BATT LOW** indicator also lights.)

CORDLESS TELEPHONE OPERATION (continued)

AUTODIAL

You can store up to 10 frequently called phone numbers in the autodial memory. Stored phone numbers can include pauses where necessary. (See below.)

To store numbers

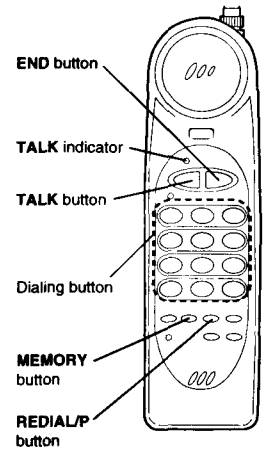
1. Press the END button.
2. Press the MEMORY button. The TALK indicator flashes.
3. Dial the phone number you want to store.
4. Press the MEMORY button.
5. Press a number button to designate an index number (0-9).
   A beep sounds. The phone number is now stored in the autodial memory.
6. Write the stored phone number on the supplied index sheet.
7. Repeat steps 2-6 above to store other numbers or to change previously stored numbers.

- To interrupt number storing, press the END button any time before step 5 above.
- To clear a stored phone number from the memory, press the END button once and then the MEMORY button twice and enter the index number (0 - 9) of the phone number you want to clear.

NOTES:
- To insert a 2-second pause between two digits in a stored number (after 9 to get an outside line in a PBX system, for example), press the REDIAL/P button after the first digit.
- Phone numbers up to 16 digits in length can be stored. (A pause counts as one digit.)
- The autodial memory is cleared if;
  • The battery pack is changed.
  • The battery pack is exhausted.

To call a number stored in the memory

1. Press the TALK button.
2. Press the MEMORY button.
3. Press the assigned index number (0-9).

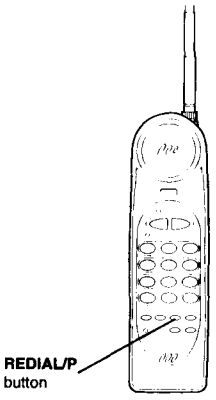


CORDLESS TELEPHONE OPERATION (continued)

REDIAL

To automatically redial the last number called, press the REDIAL/P button instead of dialing the number again. (Phone numbers up to 32 digits in length can be redialed.)

NOTE:
To redial after hearing a busy signal, press the END button, then the TALK button, then the REDIAL/P button.



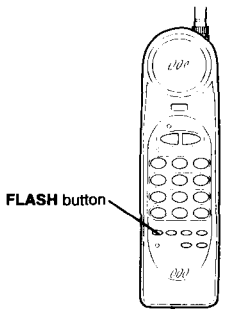
CORDLESS TELEPHONE OPERATION (continued)

FLASH BUTTON

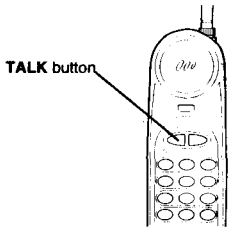
You can use the FLASH button to access special services offered by your phone company (call waiting and PBX, for example).

If you subscribe to call waiting...
1. If a call comes in when you are already on the phone, an audible tone sounds.
2. Press FLASH.
   The first call is placed on hold, and you can talk to the second caller.
3. Press FLASH again.
   The second caller is placed on hold, and you can talk to the first caller.

NOTE: The FLASH button may also be used to get a new dial tone without pressing END or replacing the handset in the base station cradle. However, if your telephone line has special service features (like call waiting), the FLASH button may not operate in this way.



HANDSET VOLUME CONTROL
If it is difficult to hear the caller's voice during conversation, press the TALK button once to increase the volume.
NOTES:
- To return to the normal level, press the TALK button again.
- The receiving level automatically resets to the normal level when the call is terminated.



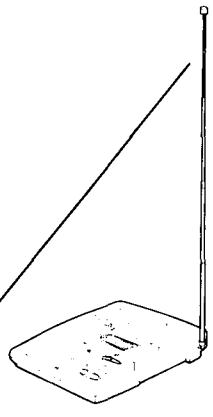
REMEMBER:
Your handset battery needs recharging when you hear a beep every 3 seconds during a conversation. (The **BATT LOW** indicator also lights.)

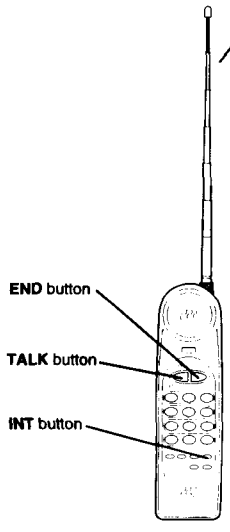
CORDLESS TELEPHONE OPERATION (continued)

INTERCOM

From handset to base station (Auto Intercom)

1. **Handset:** Press the END button.
2. **Handset:** Press the INT button to page the base station. The base station automatically switches to intercom mode.
3. **Handset and base station:** Begin intercom conversation.
4. **Handset:** When intercom conversation is over, press the END button to switch the intercom mode off.





INTERCOM WHILE A CALL IS ON HOLD

During a telephone call, the handset user can talk to the base station user. (The outside call is automatically put on hold.)

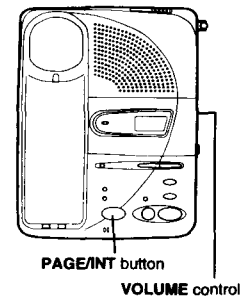
1. Press the INT button to alert the base station. (The outside call is put on hold and the TALK indicator flashes.)
2. If you end the intercom conversation or the base station does not answer, press the TALK button to talk to the caller again.

CORDLESS TELEPHONE OPERATION (continued)

INTERCOM

From base station to handset

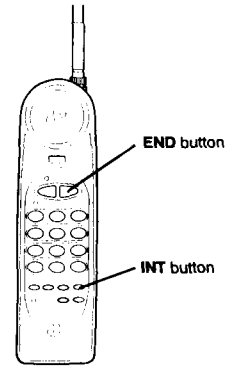
1. **Base station:** Press the PAGE/INT button to page the handset.
2. **Handset:** Press the TALK button and begin intercom conversation.
3. **Handset:** When intercom conversation is over, press the END button to switch the intercom mode off.



NOTES:
- When the VOLUME control on the base station is set to the minimum position, no sound is heard from the speaker.
- If the handset user does not answer, the base station is automatically disconnected approximately 5 seconds after you release the PAGE/INT button.

Room monitor

The handset user can monitor the ambient sound of the room where the base station is located.
1. Press the END button.
2. Press the INT button to begin monitoring.
3. Press the END button to end monitoring.
- Covering the handset mouthpiece while monitoring may produce better sound quality.

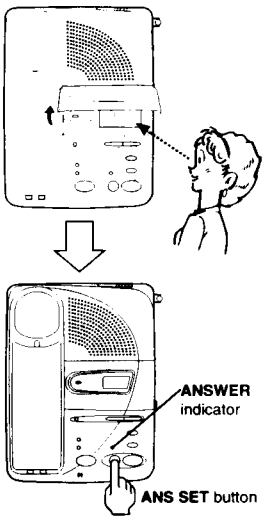


ANSWERING SYSTEM OPERATION

BEFORE YOU LEAVE

1. Make sure there is enough space left on the message tape to record your calls. If there is not, rewind the tape or turn it over and reinsert it.
2. Press the ANS SET button. The ANSWER indicator lights, and your outgoing message plays back automatically. The answering system is now ready to receive calls.

NOTES:
- If you turn over or change the message tape, you should record your message again. (This will record a backup message as described on page 14.)
- If 6 long beeps sound when you press the ANS SET button, no outgoing message has been recorded.



TAPE END ALERT
If 3 long beeps sound and the ANSWER indicator flashes slowly when you press the ANS SET button, there is not enough space left on the message tape to record calls (or the tape has not been inserted).

ANSWERING SYSTEM OPERATION (continued)

WHEN A CALL COMES IN

The answering system answers all calls and records all messages to a maximum of three minutes each. If you do not wish to record any messages, set the CPC/ANS.ONLY switch to ANS.ONLY.

NOTE:
If the end of the message tape is reached while a message is being recorded, 3 long beeps sound.

ANSWERING SYSTEM OPERATION (continued)

WHEN YOU COME HOME

CALL COUNTER
The ANSWER indicator flashes to indicate the number of messages that have been received (to a maximum of 15). If more than 15 messages are received, the indicator flashes continuously.

AUTOMATIC PLAYBACK

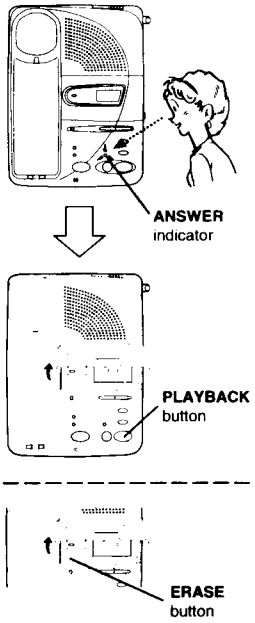
1. Press the PLAYBACK button. The answering system plays back any recorded messages (including memos).
2. Then you can:
   a) Repeat message playback
   b) Save messages
   c) Erase messages

a) To repeat messages playback
Press the PLAYBACK button. The unit plays back any recorded messages.

b) To save messages
After the last message has been played back, the tape stops and the unit returns to the auto answer mode. Leave the unit as it is. The old messages are saved, and any new ones are recorded after the old ones.

c) To erase messages automatically
Press the ERASE button. The message tape rewinds, and a beep sounds.
- After the message tape is erased, the unit automatically returns to the auto answer mode.

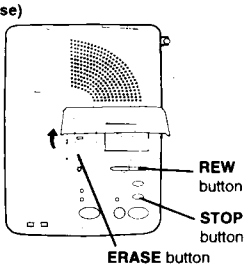
NOTE:
If the end of the message tape is reached while a message (or memo) is being recorded, the ANSWER indicator flashes slowly and continuously. If this happens, you cannot perform "AUTOMATIC PLAYBACK". Before proceeding with manual message playback, press the STOP button, and then press the REW button.



ANSWERING SYSTEM OPERATION (continued)

To erase messages manually (Fast Erase)

1. Press the STOP button.
2. Press the ERASE button and hold it.
3. While holding the ERASE button, press the REW button. The answering system begins to erase the message tape.
- The FFWD button does not function for fast erase.

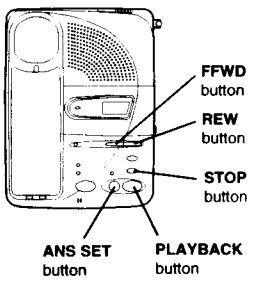


MANUAL MESSAGE PLAYBACK

The message tape can be advanced or rewound to quickly find a certain message or recorded section of the tape.

1. Press the STOP button. This disengages the unit from the auto answer mode and lets you use it like a regular tape recorder.
2. Press the PLAYBACK button. The message tape begins playing back.
3. Press and hold the FFWD or REW button to quickly move the tape forward or backward.

   Only when the tape is rewinding, you can hear a high-pitched chattering sound at the recorded portion.



4. Release the FFWD or REW button. The message tape plays back again.
5. Press the STOP button to end playback.
6. Press the ANS SET button to reset the unit to the auto answer mode.

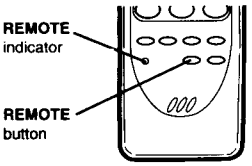
ANSWERING SYSTEM OPERATION (continued)

REMOTE CONTROL (FROM THE HANDSET)

You can access your answering system using the cordless handset.
- If the unit is not set to the auto answer mode, you cannot access the answering system using the handset.

To hear message playback using the handset

1. Press the REMOTE button.
   The REMOTE indicator lights.
   The message tape rewinds and plays back your messages.
   After the last message, 3 beeps sound.
   - If no messages are recorded, 3 beeps sound when you press the REMOTE button.
   - If 3 seconds elapse with no operations after 3 beeps, remote operation will be released automatically. Only "7" (OGM REC) and "0" (TURN OFF) operations are acceptable within these 3 seconds.
   - If more than 10 messages have been recorded, a single long beep sounds when you press the REMOTE button.



2. Then you can:
   a) Repeat message playback
   b) Save messages
   c) Erase messages

a) To repeat messages playback
After message playback ends (3 beeps sound), press "1" (within 10 seconds).
The tape plays back again.
After the last message, 3 beeps sound.

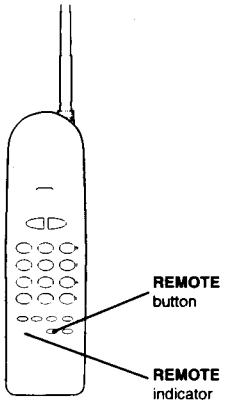
b) To save messages
After message playback ends (3 beeps sound), press the END button (or return the handset to the base station cradle).
The messages are saved, and any new messages are recorded after the old ones.

c) To erase messages
After message playback ends (3 beeps sound), press "2" (within 10 seconds).
The tape rewinds, and 3 beeps sound. Any new messages are recorded over the old ones.

ANSWERING SYSTEM OPERATION (continued)

To fast-forward the tape using the handset
1. Press and hold "3" during playback.
   The message tape fast-forwards as long as you press "3".
2. When you release "3", message playback begins again.

To rewind the tape using the handset
1. Press and hold "6" during playback.
   The message tape rewinds as long as you press "6".
2. When you release "6 ", message playback begins again.



To change your outgoing message using the handset
1. Press the REMOTE button.
   The REMOTE indicator lights.
   The message tape rewinds and plays back your messages.
   After the last message, 3 beeps sound.
2. After 3 beeps, press "7" immediately.
3. Record your new outgoing message.
4. Press "8" to finish recording.
   Wait a moment. Your new outgoing message plays back.
   - If you change your outgoing message, the message tape rewinds to the beginning and any new messages are recorded over the old ones.
   - If you accidentally press the END button while recording, the recorded contents will be canceled. In this case, you must record your outgoing message from the base station again.

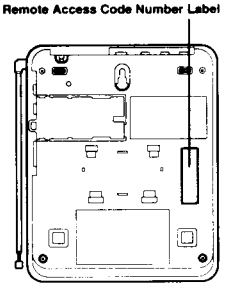
To turn off the answering system using the handset
1. Press the REMOTE button.
   The REMOTE indicator lights.
   (If no messages have been recorded, 3 beeps sound.)
2. Press "0" immediately.
   The unit turns off automatically.

ANSWERING SYSTEM OPERATION (continued)

REMOTE CONTROL (FROM ANOTHER TELEPHONE)

You can access your answering system from another location using any Touch-Tone telephone. Your factory-preset remote access code number (located on the bottom of the unit) helps ensure your privacy.
Record your remote access code number here. [ ][ ]

Remote Access Code Number Label



NOTES:
- If the unit is not set to the auto answer mode, you cannot access the answering system from another location. (You must activate the system first. See "To turn on the answering system by remote" on page 36.)
- The beeperless remote feature does not work when you call the unit from a pulse-dialing telephone.

To hear message playback by remote
1. Dial your phone number and listen to your outgoing message.
2. After you hear the beep at the end of the outgoing message, enter your remote access code within 3 seconds.
   The message tape rewinds and plays back the messages. After the last message, 3 beeps sound.

NOTES:
- If no messages are recorded, 3 beeps sound when you enter your remote access code.
- The answering system automatically returns to the auto answer mode in 3 seconds. At this point, if you wish, you can change your outgoing message or turn off the answering system.
- If more than 10 messages have been recorded, a single long beep sounds when you enter your remote access code.

ANSWERING SYSTEM OPERATION (continued)

3. After listening to your messages, you have 3 choices:
   a) Repeat message playback
   b) Save messages
   c) Erase messages

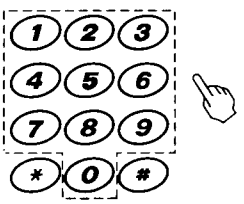
a) To repeat messages playback
Wait for message playback to end (3 beeps sound).
Press "1" (within 10 seconds).
The tape plays back again.
After the last message, 3 beeps sound.

b) To save messages
When message playback ends (3 beeps sound), simply hang up the phone. The messages are saved, and any new messages are recorded after the old ones.

c) To erase messages
1. Wait for message playback to end (3 beeps sound).
   Press "2" (within 10 seconds).
   The message tape rewinds, and 3 beeps sound.
2. Hang up.
   Any new messages are recorded over the old ones.

To fast- forward the tape by remote
1. Press and hold "3" during playback.
   The message tape fast-forwards as long as you press "3".
2. When you release "3", message playback begins again.

To rewind the tape by remote
1. Press and hold "6" during playback.
   The message tape rewinds as long as you press "6".
2. When you release "6", message playback begins again.



ANSWERING SYSTEM OPERATION (continued)

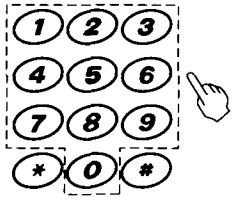
To change your outgoing message by remote

1. Dial your phone number and listen to your outgoing message.
2. After you hear the beep at the end of the outgoing message, enter your remote access code. The message tape rewinds and plays back your messages. After the last message, 3 beeps sound.
3. After 3 beeps, press "7" immediately.
4. Record your new outgoing message.
5. Press "8" to finish recording. Wait a moment. Your new outgoing message will play back automatically.
6. Hang up after you hear the new outgoing message.

- If you change your outgoing message, the message tape rewinds to the beginning and any new messages are recorded over the old ones.

To turn off the answering system by remote

1. Dial your phone number and listen to your outgoing message.
2. After you hear the beep at the end of the outgoing message, enter your remote access code.
3. Press "0".
4. Hang up.
   The answering system turns off automatically.



Room monitoring

The CLA-1380AUS lets you monitor the ambient sound of the room where the answering system is located.

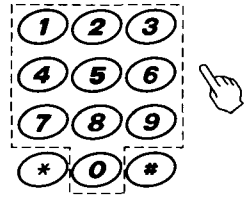
1. Dial your phone number and listen to your outgoing message.
2. After you hear the beep at the end of the outgoing message, enter your remote access code.
3. Press "5" to begin monitoring. After 30 seconds you hear a beep and the answering system hangs up automatically.
4. To listen for another 30 seconds, press "5" again immediately after the beep.

ANSWERING SYSTEM OPERATION (continued)

To turn on the answering system by remote

If you have left your home or office without setting the unit to the auto answer mode, you can set it from any Touch-Tone telephone.

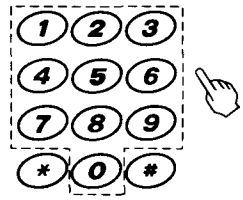
1. Dial your phone number.
2. Let the phone ring 16 times. After 16 rings, the unit plays back your outgoing message and 3 beeps sound.
3. After 3 beeps, no sound is heard for approximately 10 seconds.
4. Within these 10 seconds, enter your remote access code. The unit automatically resets to the auto answer mode.
5. Hang up.



To reset the answering system by remote

When the tape is fully recorded, the unit shuts off. But you can retrieve recorded messages by remote as follows:

1. Dial your phone number.
2. Let the phone ring 16 times. After 16 rings, the unit plays back your outgoing message and 3 beeps sound.
3. After 3 beeps, no sound is heard for approximately 10 seconds.
4. Within these 10 seconds, enter your remote access code. The message tape rewinds and plays back. At the end of the last message, 3 beeps sound.
5. After 3 beeps, press "2" (within 10 seconds).
6. Hang up.
   The message tape rewinds, and the unit automatically resets to the auto answer mode.



ANSWERING SYSTEM OPERATION (continued)

OTHER ANSWERING SYSTEM FEATURES

CALL SCREENING

This cordless telephone/answering system lets you monitor incoming calls, from the base station or the handset, to avoid unwanted calls.

Base station:

1. Set the VOLUME control to the correct position to let you hear messages.
2. If you do not wish to speak to the caller, let the answering system record the message. If you wish to speak to a caller, pick up the handset from the base station.
3. When you finish speaking to the caller, return the handset to the base station cradle. The unit returns automatically to the auto answer mode.

Handset:

If the handset is not on the base station cradle, the REMOTE indicator flashes while the incoming message is recorded.

1. To monitor the incoming message, press the REMOTE button. If you wish to speak to the caller, press the TALK button.
2. When you finish speaking to the caller, press the END button. The unit returns automatically to the auto answer mode.

EXTENSION PHONE DISCONNECT

If you pick up an extension phone while a call is being answered, the unit automatically disconnects from the line to let you take the call.
If you pick up while a message is being recorded, the call is counted as one call.
If you pick up while your outgoing message is being played, the call is not counted.

ANSWERING SYSTEM OPERATION (continued)

OTHER ANSWERING SYSTEM FEATURES

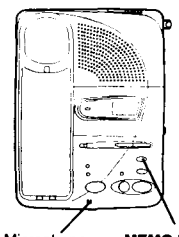
MEMO (PERSONAL MESSAGE) RECORDING

You can leave a memo (a recorded personal message) that can be retrieved manually or by remote control by anyone who has access to the answering system.

NOTES:

- The call counter counts memos as messages.
- Memo recordings can be as long as the available message tape.

1. Make sure the unit is in the auto answer mode. (See page 27.)
2. Press the MEMO REC button.
3. Record a message using the built-in microphone (MIC).
4. When you have finished recording your message, press the MEMO REC button again.



MAINTENANCE

CLEANING THE CONTACT POINTS

To ensure proper charging of the handset battery pack, clean the battery charging terminals on the handset and the base station once a month by wiping them with a soft cloth moistened lightly with isopropyl alcohol.

CASSETTE TAPES

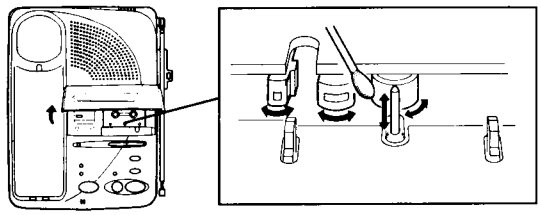
After a message tape has been in use for 6 months, you should turn it over and use the other side for the next 6 months. After that you should replace it with another Sanyo cassette designed for answering-system use. If you decide to use another brand, make sure the tape is of high quality.

CLEANING THE HEADS

To ensure continued high performance from the answering system, clean the head, pinch roller and capstan periodically, whenever dust or reddish-brown oxide particles have accumulated. Failure to do so may result in inferior sound quality and inconsistent tape speed.

1. Open the cassette compartment lid.
2. Moisten a soft cloth or cotton swab with isopropyl alcohol, and gently rub the surface of the heads, pinch roller and capstan until the dirt or oxide is removed.

NOTE:
Remember that you own the unit. The telephone company is not responsible for its maintenance.



MAINTENANCE (continued)

CAUTION

During a lightning storm, or when the answering system will not be in use for an extended period, you should disconnect it from the telephone line and unplug it from the AC outlet.

POWER FAILURE

If a power failure continues for only a short time (within one half-hour), the unit resets to the auto answer mode. However, if the power failure lasts longer, the unit is disengaged from the auto answer mode and old messages cannot be retrieved from a remote location.

- If a power failure occurs, the security code must be reset. (See page 4.)
- If a power failure occurs, record your outgoing message again. (See page 4.)

TROUBLESHOOTING

If you have a problem with your cordless telephone/answering system, try the following suggestions before calling for service.

CORDLESS TELEPHONE SECTION:

If the phone does not work:
- The AC adaptor may not be plugged into a wall outlet.
- The battery pack may need recharging. (BATT LOW indicator lights in talk mode.)
- The security code may not be set properly. (See page 11.)
- The handset may be too far from the base station.

If the communication range is too short:
- Check the base station location. (See page 4.)
- Extend the base station antenna fully.

If incoming calls do not ring on the handset:
- The handset may be too far from the base station.
- The RINGER switch may be set to the off position.

If the battery is not charging:
- The battery contacts may need cleaning.
- The battery plug may be connected properly.

If you encounter noise or interference:
- Press the SCAN button.

Important note:
The rechargeable battery pack should be replaced with a new one if the BATT LOW indicator lights after only a few telephone calls, or if the available calling time (duration of a phone call) becomes shorter than normal, even when the battery pack has been charged for 12 or more hours.

REMEMBER:
Your handset battery needs recharging when you hear a beep every 3 seconds during a conversation. (The **BATT LOW** indicator also lights.)

TROUBLESHOOTING (continued)

If you have a problem with your cordless telephone/answering system, try the following suggestions before calling for service.

ANSWERING SYSTEM SECTION:

If your outgoing message is not recorded:
- Press and hold the OGM REC button for at least 1 second until a beep sounds. (The OGM REC button is located inside the cassette compartment lid.)
- The message tape may not be inserted.

If the unit is set to the auto answer mode but no messages have been recorded:
- The tape may need rewinding. Make sure the full side of the tape is on the right.
- The message tape may be damaged or may not have been inserted.
- Your outgoing message may not have been recorded properly.
- The CPC/ANS.ONLY switch may be set to ANS.ONLY.

If the unit disconnects before the caller has finished leaving a message:
- The caller may have kept silent for too long.
- The caller's voice may have been extremely low.

If the telephone rings but the unit does not answer the phone:
Set the unit to auto answer mode. (See page 27.)

If you hear beeps but no messages during message playback:
A caller probably hung up without leaving a message. The beeps you hear represent each time your outgoing message was played, not each time someone spoke.

If you try to retrieve your messages from another telephone but nothing happens:
- You may not have entered the correct remote access code number.
- You may not have entered the correct remote access code, or entered it incorrectly.
- You may not be using Touch-Tone telephone, or the telephone does not produce continuous tones while the dialing buttons are pressed.
- You may have entered your remote access code before the beep that follows your outgoing message.

If the unit does not function after it has been exposed to a static electric shock:
- Disconnect the AC adaptor, then reconnect it.
- Record your outgoing message again.
- Reset the security code.

MALFUNCTIONS

Although it is unlikely that the base station will malfunction, if it does, disconnect it from the telephone line until proper repairs are completed.

The cordless telephone uses radio frequencies for transmission and reception, and is subject to certain operating conditions. The following conditions are normal and could affect the operation of your system.

1. NOISE
Electrical pulse noise is present in most homes at one time or another. This is most intense during electrical storms. Certain kinds of electrical equipment such as light dimmers, fluorescent bulbs, motors, fans, etc., also generate these noise pulses. Because radio frequency transmissions are susceptible to these pulses, on occasion you may hear them in your handset. Generally they are a minor annoyance and should not be interpreted as a defect in your system.

2. RANGE
Because radio frequencies are used, the location of the base station can affect the operation range. Try several locations in your home or business and pick the one that gives you the clearest signal to the handset. Turning around while holding the handset may help you find the best position.

3. INTERFERENCE
Electronic circuits activate a relay to connect the cordless telephone to your telephone line. These electronic circuits operate in the radio frequency spectrum. While several protection circuits are used to prevent unwanted signals, there may be periods when these unwanted signals enter the base station. You may hear clicks or hear the relay activate while you are not using the cordless handset. If this starts occurring frequently, it can be minimized or eliminated by lowering the height of your base station antenna, or relocating the base station. Check for interference before selecting your final base station location by plugging it in and monitoring it for clicks.

Two cordless systems should not be operated too close to each other because of interference. This interference can be reduced by lowering your base station antenna, thereby reducing its range.

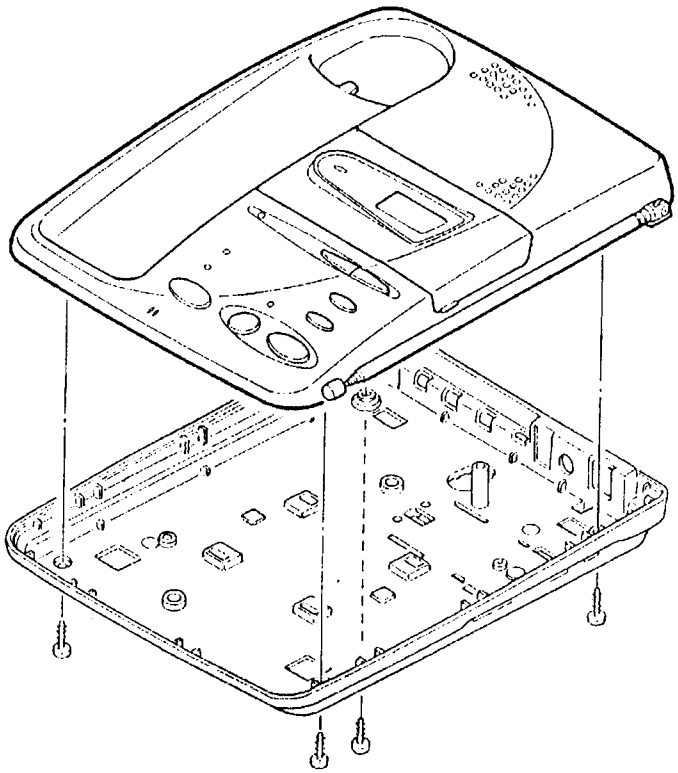
REMOVAL AND INSTALLATION

- All wiring should be returned to the original position after work is completed.

1. BASE STATION SECTION

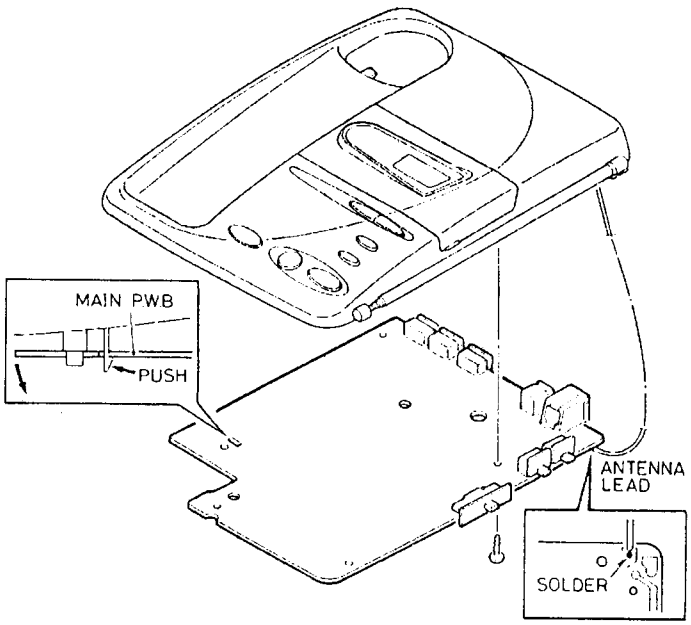
(1) REMOVAL OF TOP LID

1) Remove 4 bottom cabinet mounting screws.



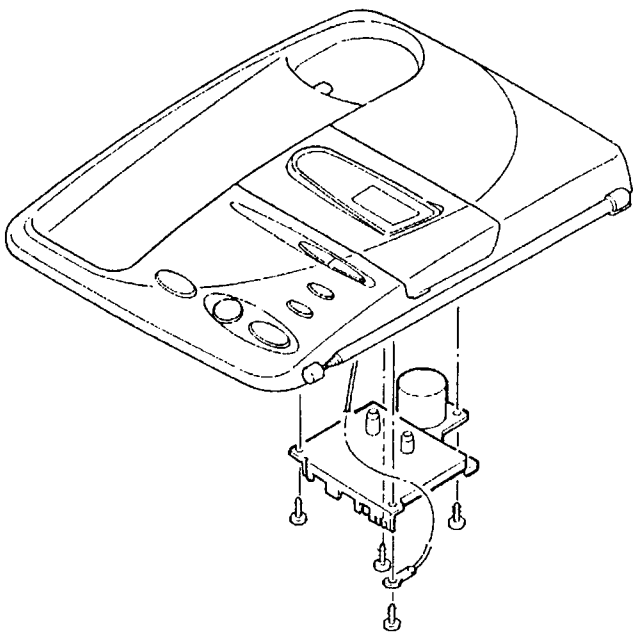
(2) REMOVAL OF MAIN P. W. BOARD

1) Remove the antenna lead wire.
2) Remove a MAIN P. W. Board mounting screw.



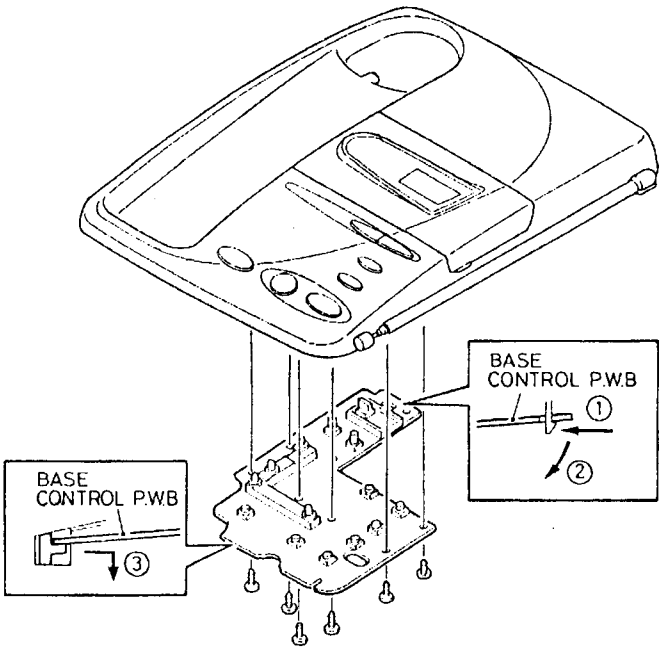
(3) REMOVAL OF MECHANISM

1) Remove 4 mechanism mounting screws.



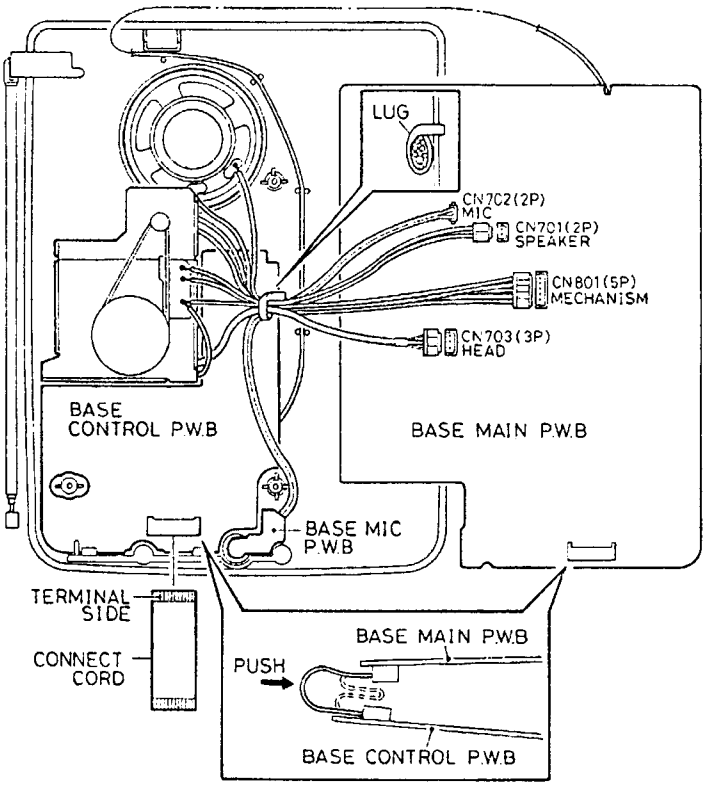
(4) REMOVAL OF CONTROL P. W. BOARD

1) Remove 6 CONTROL P. W. Board mounting screws.
2) Remove the CONTROL P. W. Board as shown the figure.



(5) WIRING LAYOUT

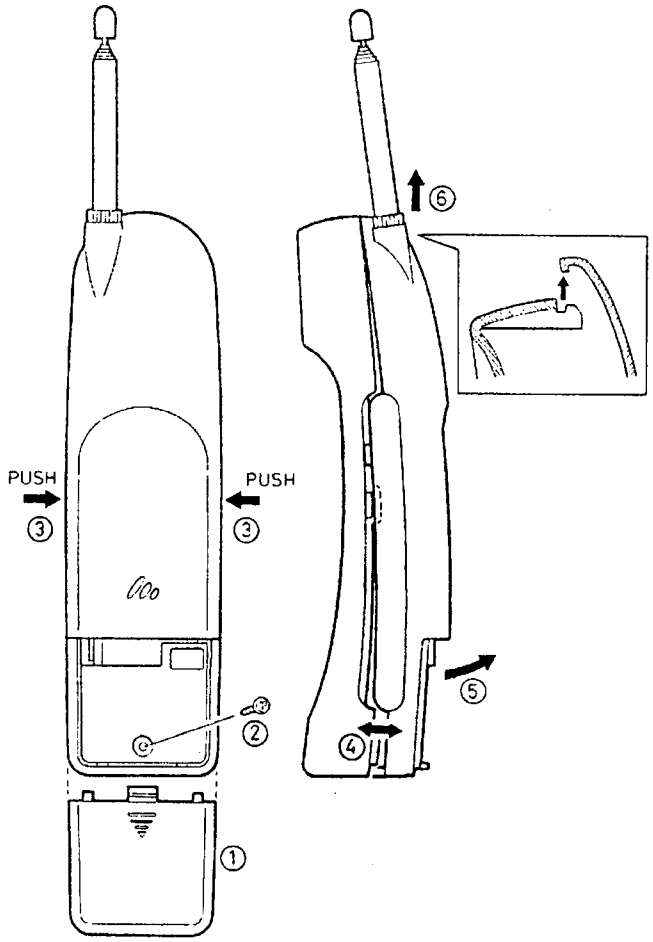
- All wiring should be returned to the original position after work is completed.



2. HANDSET SECTION

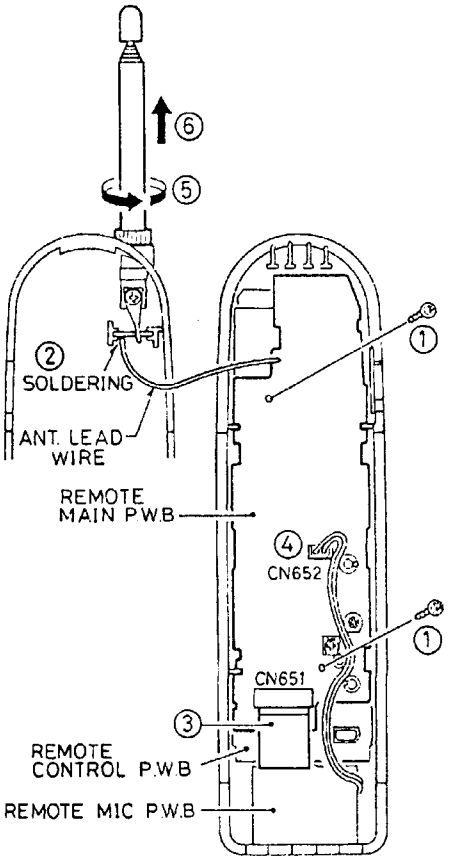
(1) REMOVAL OF CABINET

- The procedure for disassembly the handset is as follow :
  1) Remove the battery compartment lid [①].
  2) Remove the battery pack.
  3) Remove a handle mounting screw [②].
  4) While pressing the shaded area to release the hooks on both sides of the cabinet [③], gently open the bottom of the cabinet [④].
  5) While gently opening the handle, lift and remove [⑤, ⑥].



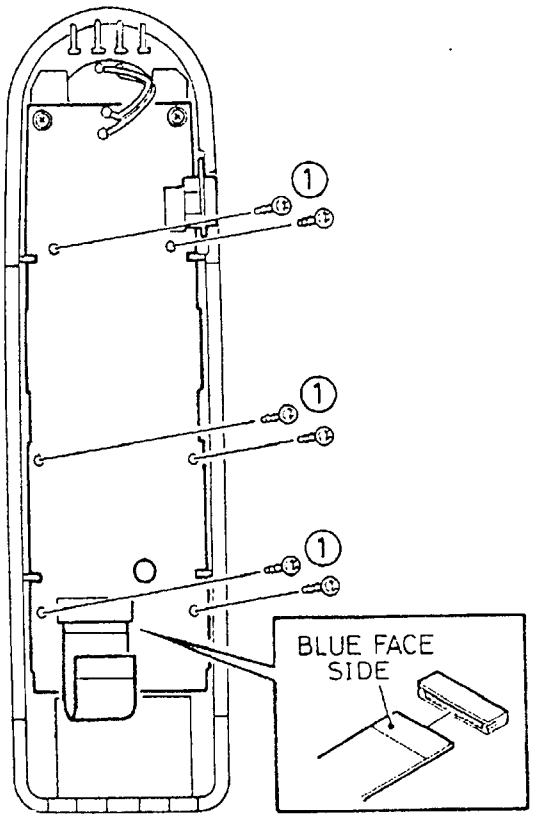
(2) REMOVAL OF MAIN P. W. BOARD

1) Remove the 2 MAIN P.W.Board mounting screws [①].
2) Remove the solder between the antenna lead wire and the P.W.Board [②].
3) Remove the 3 connectors [③,④].
4) Remove the antenna [⑤,⑥].



(3) REMOVAL OF CONTROL P. W. BOARD

1) Remove the 5 CONTROL P. W. Board mounting screws [①].
2) Taking care not to damage the "TALK" and "BATT. LOW" LED's, remove the control P. W. Board as shown in the figure [②].
3) Remove the ringer switch on the control P. W. Board as shown in the figure [③].



MAINTENANCE

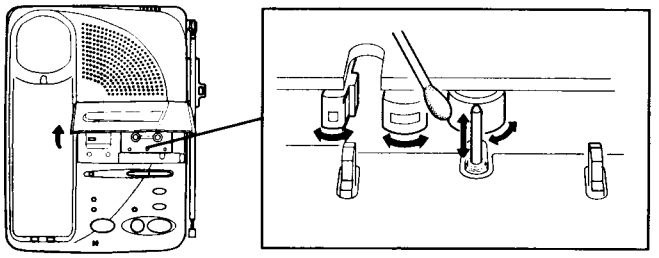
CLEANING THE CONTACT POINTS
To ensure proper charging of the handset battery pack, clean the battery charging terminals on the handset and the base station once a month by wiping them with a soft cloth moistened lightly with isopropyl alcohol.

CASSETTE TAPES
After a message tape has been in use for 6 months, you should turn it over and use the other side for the next 6 months. After that you should replace it with another Sanyo cassette designed for answering-system use. If you decide to use another brand, make sure the tape is of high quality.

CLEANING THE HEADS
To ensure continued high performance from the answering system, clean the head, pinch roller and capstan periodically, whenever dust or reddish-brown oxide particles have accumulated. Failure to do so may result in inferior sound quality and inconsistent tape speed.

1. Open the cassette compartment lid.
2. Moisten a soft cloth or cotton swab with isopropyl alcohol, and gently rub the surface of the heads, pinch roller and capstan until the dirt or oxide is removed.

NOTE:
Remember that you own the unit. The telephone company is not responsible for its maintenance.



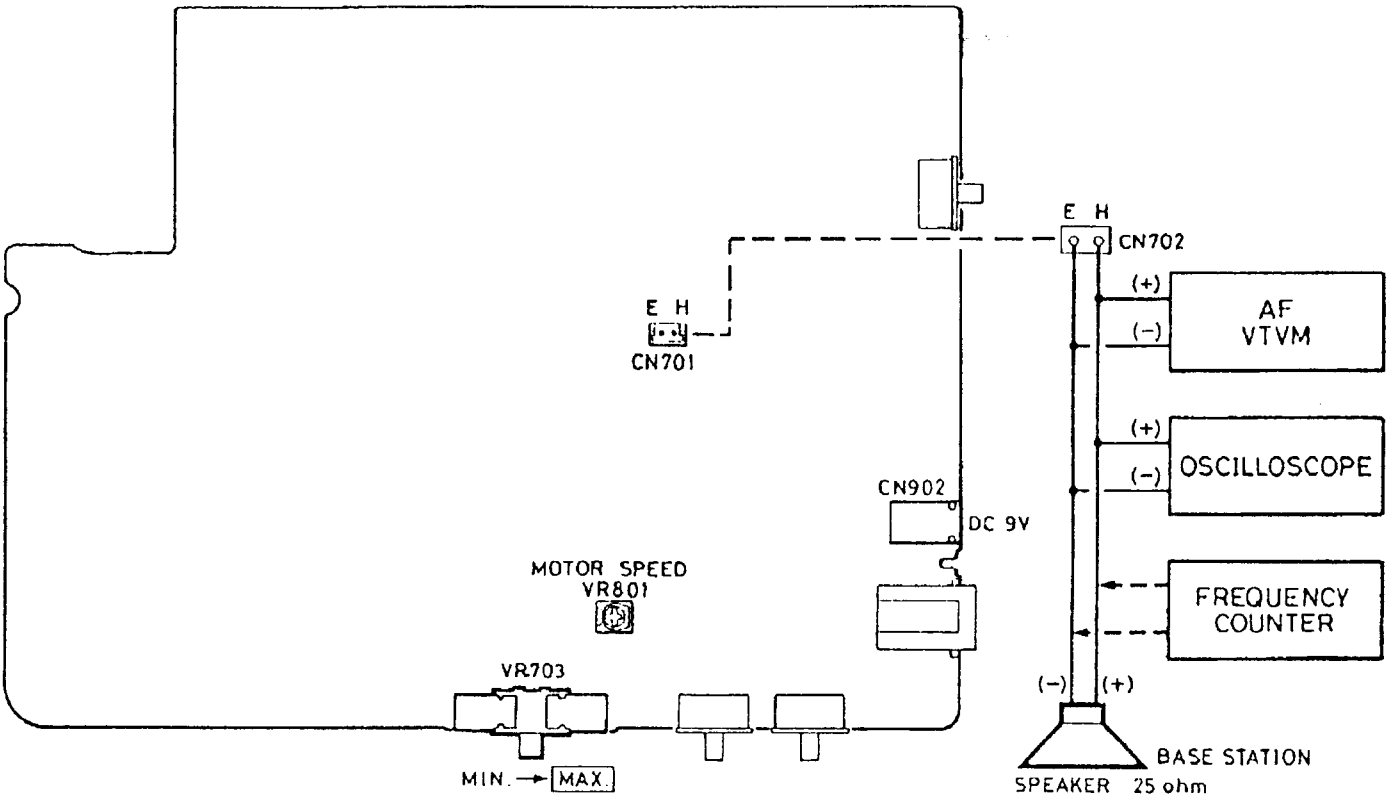
PREPARATION FOR ADJUSTMENTS

Measuring instruments, tools.

(1) Test tape
- OA-W41 : Head azimuth (3kHz, -10dB)
- OA-W411 : Motor speed (3kHz, -10dB)
- MC-30 : Normal tape

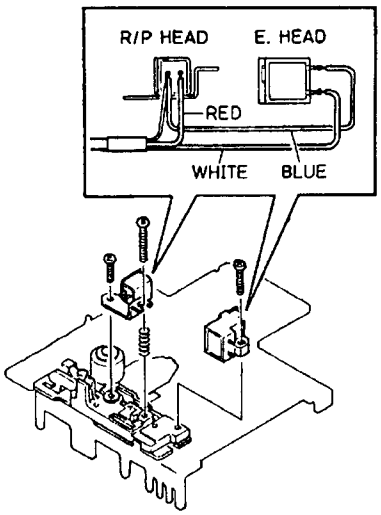
(2) Oscilloscope
(3) AF-VTVM
(4) Frequency counter
(5) Screwdriver (non-metallic) for adjustments.

PARTS LOCATION



TAPE MECHANISM ADJUSTMENT

1. HEAD REPLACEMENT AND AZIMUTH ADJUSTMENT

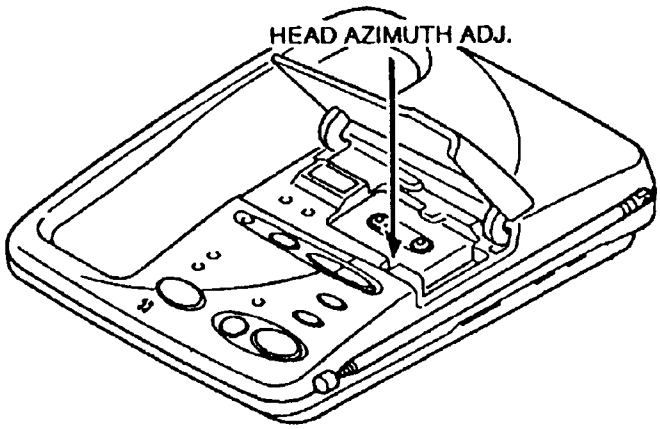


(1) HEAD REPLACEMENT

Notes : 1) After replacement, demagnetize the heads by using a degausser.
2) Be sure to clean the heads before attempting to make any adjustments.
3) All wiring should be returned to the original position after work is completed.

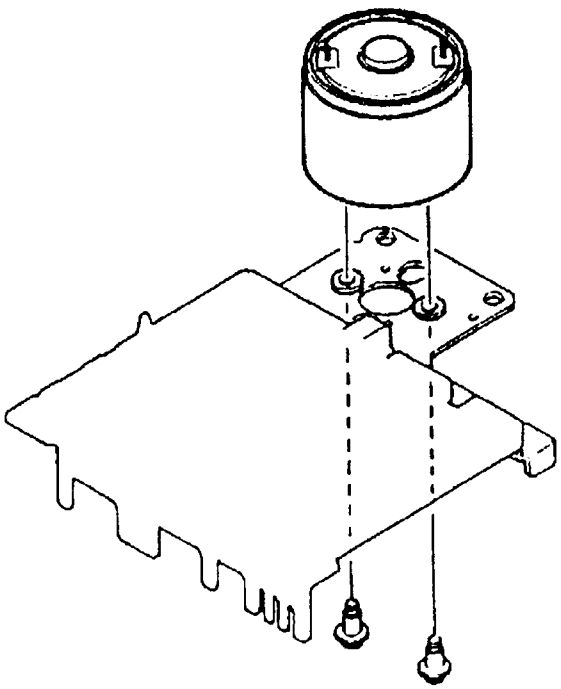
(2) HEAD AZIMUTH ADJUSTMENT

1) Load the test tape (OA-W411, etc. : 3kHz) for azimuth adjustment.
2) Press the PLAY button.
3) Use a cross-tip screwdriver to turn the screw for azimuth adjustment so that the output is maximized.
4) After completion of the adjustment, use thread lock (TB-1401B) to secure the azimuth adjustment screw.



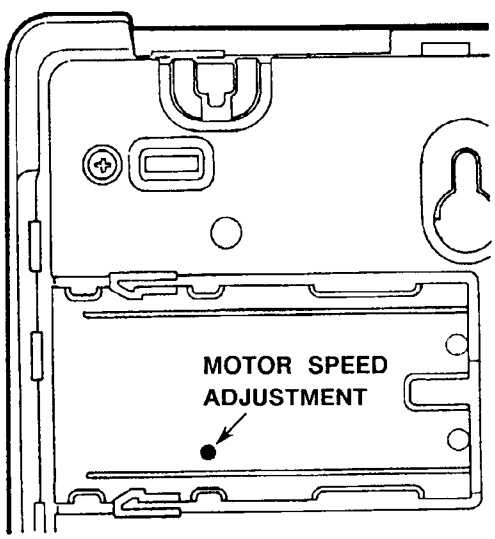
2. MOTOR REPLACEMENT AND SPEED ADJUSTMENT

(1) MOTOR REPLACEMENT



(2) MOTOR SPEED ADJUSTMENT

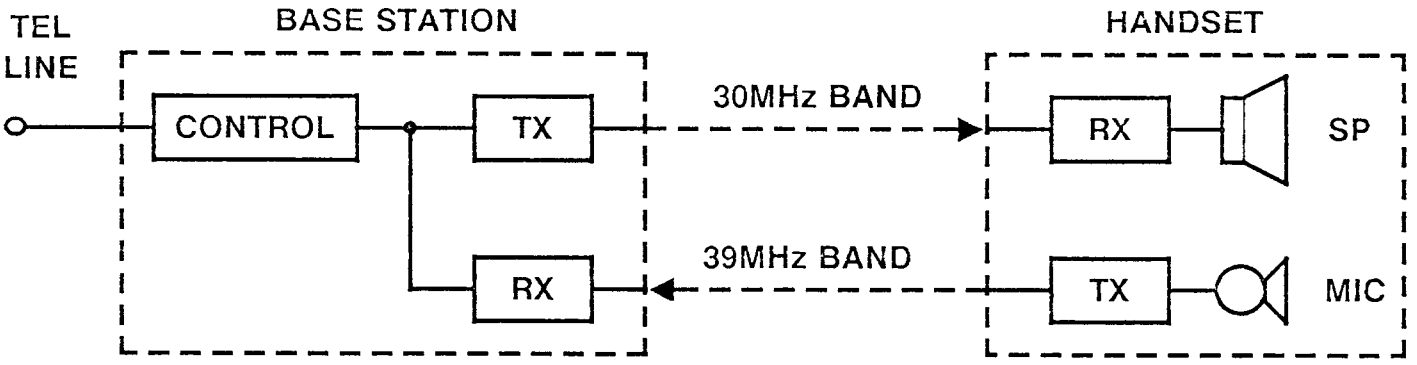
1) Insert the test tape (OA-W411, etc. : 3,000Hz).
2) Press the PLAY button.
3) Adjust VR801 so that the frequency counter reading Is 3,000Hz.



ADJUSTMENT

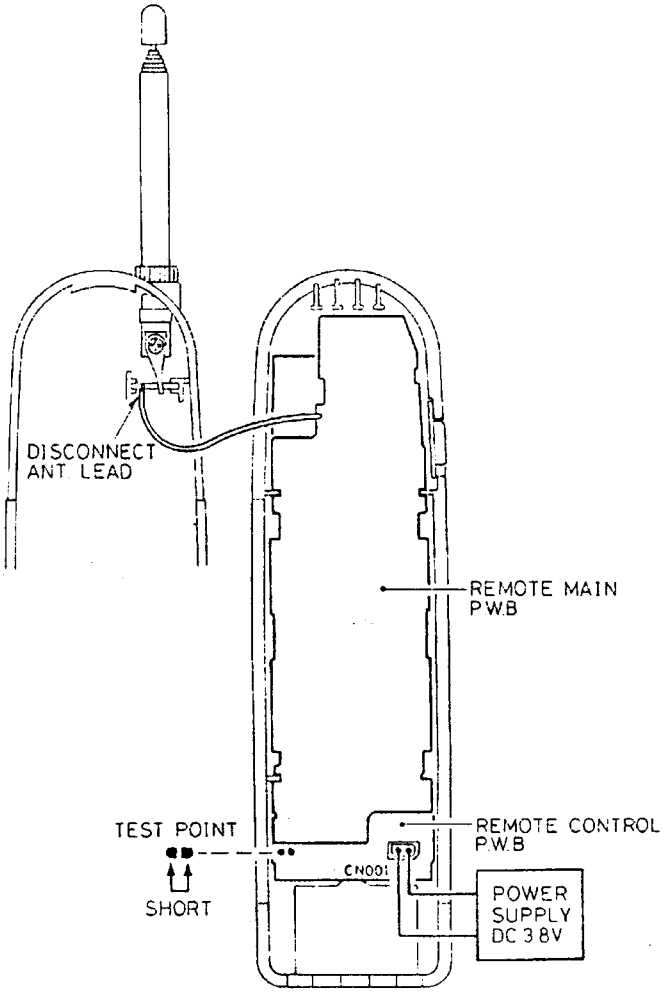
This cordless telephone is composed of two sections, the base stations and the handset.
The 30MHz and 39MHz frequency bands are used for these communications.
There are 10 channels, each consisting of two frequencies, one from the 30MHz band and one from the 3 9MHz band. AT any given time, communications between the base station and handset use one pair of these frequency channels.

CHANNEL	BASE STATION : TX ⇒ HANDSET : RX	HANDSET : TX ⇒ BASE STATION : RX
1	30.075 MHz	39.775 MHz
2	30.100 MHz	39.800 MHz
3	30.125 MHz	39.825 MHz
4	30.150 MHz	39.850 MHz
5	30.175 MHz	39.875 MHz
6	30.200 MHz	39.900 MHz
7	30.225MHz	39.925 MHz
8	30.250 MHz	39.950 MHz
9	30.275 MHz	39.975 MHz
0(10)	30.300 MHz	40.000 MHz



MEASURING INSTRUCTIONS, TOOLS

(1) FM STANDARD SIGNAL GENERATOR : MSG-2560B, etc.
(Frequency : 100 kHz - 110 MHz
Modulation : 2.5kHz,Level : 46dBμ)
(2) LINEAR DETECTOR (FOR FM) : LD-460 etc.
(3) RF VTVM or ELECTRONIC VOLTMETER : ML-69A etc.
(4) FREQUENCY COUNTER : VP-4050A, etc.
(5) AF VTVM or AF AC VOLTMETER (ACVM)
(6) AF OSCILLATOR (1 kHz)
(7) DIGITAL VOLTMETER
(8) DC POWER SUPPLY
(9) TELEPHONE ANALYZER : 1050

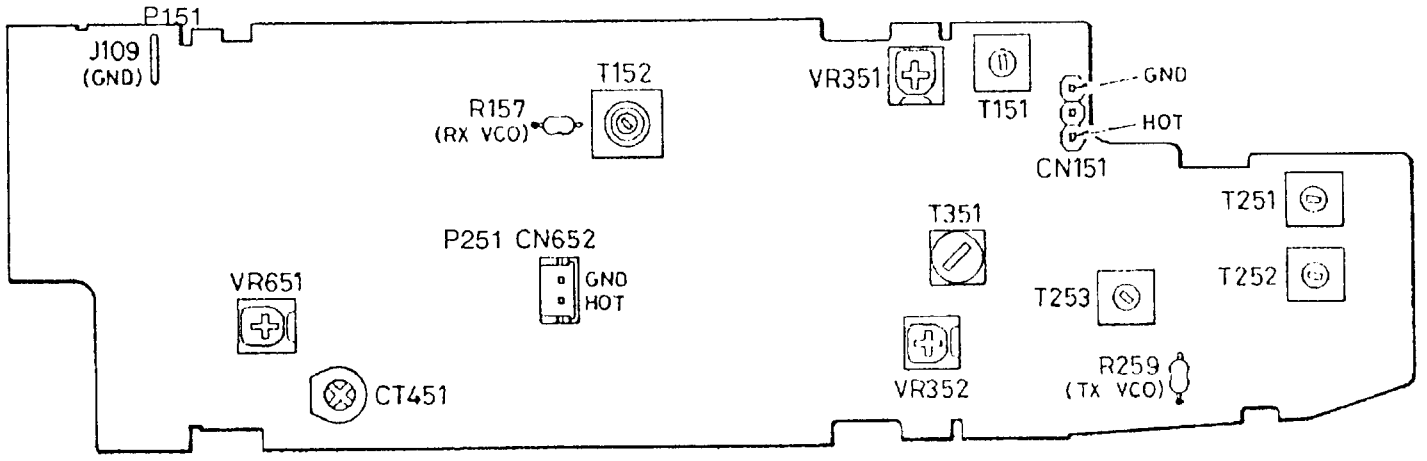


HANDSET SECTION

Note :

- Disconnect the Ni-Cd battery and feed 3.8V from the DC power supply.
- During adjustment, disconnect the antenna lead wire.
- Set unit to "TEST" mode by shorting the "TEST POINT" (P001) as shown in right figure.

PARTS LOCATIONS



1. VCO (HANDSET)

Test Equipment

(1) Digital voltmeter
(2) DC Power supply (DC 3.8V)

Unit Condition

(1) Press the "0", followed by "✳" button on the handset. And to set handset to channel 10.

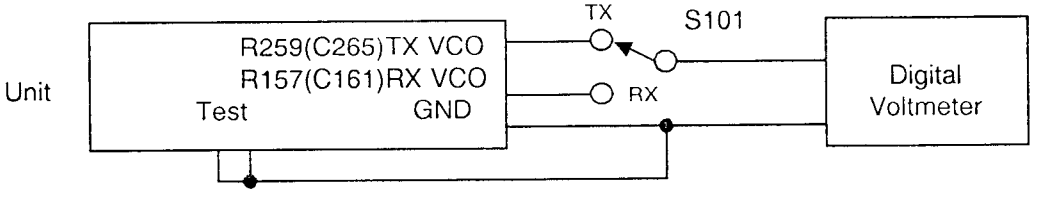
1. TX VCO

(1) Connect a Digital voltmeter and switch S101 to P152.
(2) Set switch S101 to the TX position.
(3) Adjust T253 (TX) so that the reading of the Digital voltmeter is 1.8 V ±0.2 V.

2. RX VCO

(1) Connect a Digital voltmeter and switch S101 to P152.
(2) Set switch S101 to the RX position.
(3) Adjust T152 (RX) so that the reading of the Digital voltmeter is 1.8 V ±0.2 V.

STEP	CONDITION	ADJUST	ADJUST VALUE	SPECIFICATION
1. TX VCO	S101 : TX SIDE	T253	1.8 V	1.8 ± 0.2V
2. RX VCO	S101 : RX SIDE	T152	1.8 V	1.8 ± 0.2V



2. TRANSMITTING (HANDSET)

Test Equipment

(1) RF Electronic Voltmeter
(2) Linear Detector
(3) Frequency Counter
(4) AF Oscillator
(5) AF VTVM
(6) Dummy Load (50 ohm)
(7) DC Power supply (DC 3.8V)

Unit Condition

(1) Change to channel 10 by pushing "0", followed by "✕" button .
(2) Connect IC651 pin 1 to ground by electrical capacitor (100μF / 6.3V).

1. TX POWER

(1) Connect a RF electronic voltmeter with 50 ohm probe, and switch S102 to the ANT test pin (CN151).
(2) Set switch S102 to the CARR position.
(3) Adjust T252 so that the reading of the RF electronic voltmeter is maximum level.
(4) Adjust T251 so that the reading of the RF electronic voltmeter is maximum level.

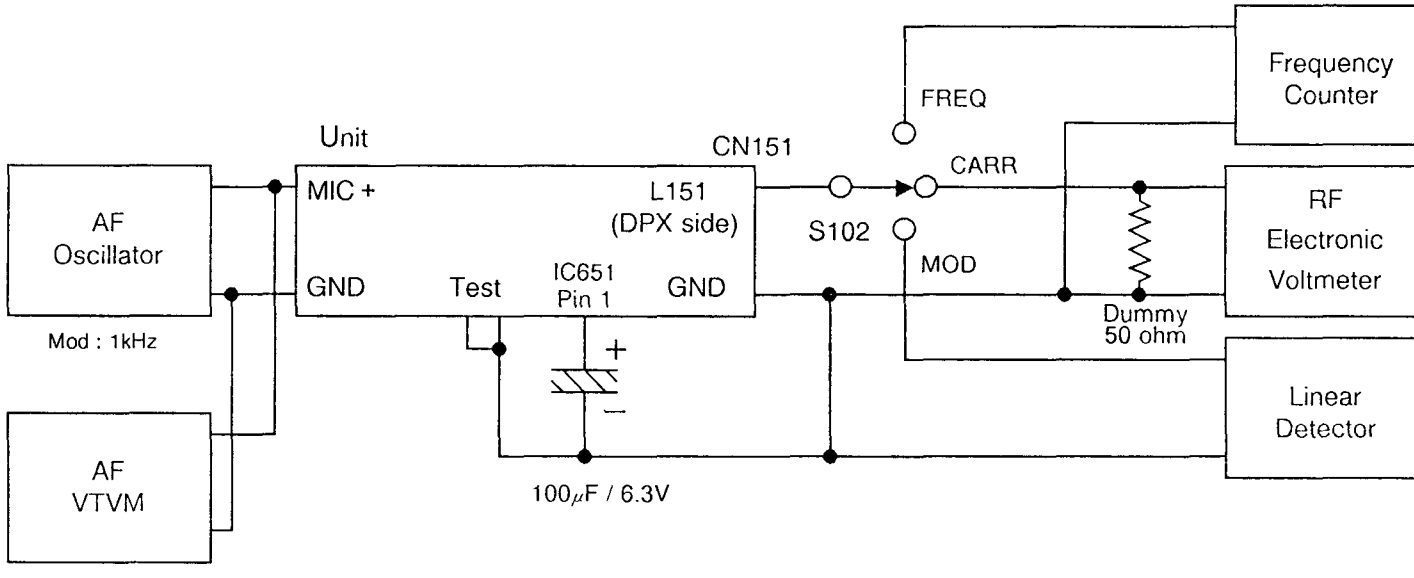
2. TX FREQUENCY

(1) Connect a frequency counter and switch S102 to the ANT test pin (CN151).
(2) Set switch S102 to the FREQ position.
(3) Adjust CT451 so that the reading of the frequency counter is 49.770 MHz ±0.5 kHz.

3. MIC MODULATION

(1) Connect a Linear detector and switch S102 to ANT test pin (CN151).
(2) Set switch S102 to the MOD position.
(3) Connect an AF oscillator (Mod.: 1kHz) and AF-VTVM to microphone input.
(4) Adjust an AF oscillator so that the reading of the AF-VTVM is 10 mV.
(5) Adjust VR651 so that the reading of the linear detector is 1.5 kHz ±0.1 kHz dev.

STEP	CONDITION	ADJUST	ADJUST VALUE	SPECIFICATION
1. TX POWER	S102 : CARR SIDE	T251 · T252	Maximum Level	
2. TX FREQUENCY	S102 : FREQ SIDE	CT451	40.000 MHz	40.000 MHz ±0.5 kHz
3. MIC MODULATION	S102 : MOD SIDE OSC OUT : 10 mV	VR651	1.5 kHz Dev.	1.5 ± 0.1 kHz Dev.(1 kHz) 0.9 ± 0.3 kHz Dev.(300 Hz) 2.7 ± 1.0kHz Dev.(3 kHz)



3. RECEIVING (HANDSET)

Test Equipment

(1) FM SSG (50 ohm, OPEN type)
(2) AC Voltmeter
(3) DC Power Supply (DC 3.8V)
(4) Distortion meter
(6) Digital voltmeter

Unit Condition

(1) Change to channel 6 by pushing "6", followed by "✕" button.
(2) Connect IC351 pin 16 to ground by electrical capacitor (10μF / 16V). ------ HCC : OFF Mode

1. RX IF

(1) Connect a FM SSG (1 kHz mod., 2.0 kHz dev., 30.100 MHz, 46dBμ) to the ANT test pin (CN151).
(2) Connect an AF-VTVM and distortion meter in parallel and terminate a 150 ohm dummy load across the SP terminal.
(3) Adjust T351 so that the reading of the AF voltmeter is maximum level and minimum distortion at distortion meter.

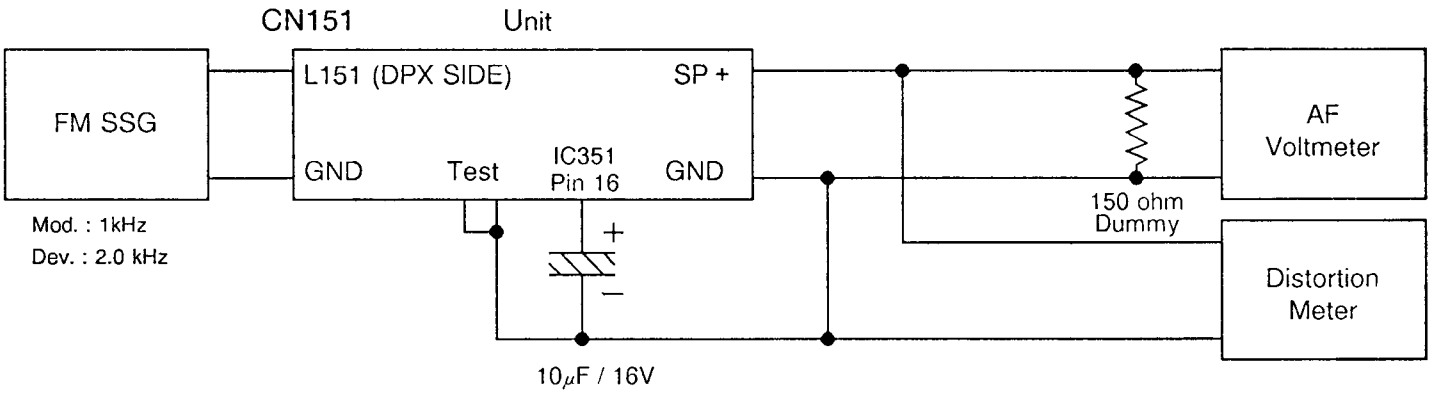
2. RX RF

(1) Connect a FM SSG (46 dBμ → 0 dBμ) to the ANT test pin (CN151).
(2) Adjust T151 so that the reading of the distortion meter is minimum distortion (less than 10%).

3. RX AF LEVEL

(1) Connect a FM SSG (0 dBμ → 46 dBμ) to the ANT test pin (CN151).
(2) Adjust VR352 so that the reading of the AF voltmeter is 50 mV ±10 mV at SPEAKER output.

STEP	CONDITION	ADJUST	ADJUST VALUE	SPECIFICATION
1. RX IF	FM SSG : 46dBμ	T351	MAXIMUM LEVEL	------
2. RX RF	FM SSG : 0dBμ	T151	MINIMUM DISTORTION	less than 10%
3. RX AF LEVEL	FM SSG : 46dBμ	VR352	50 mV	50 mV ±10 mV



4. BATTERY LOW (HANDSET)

Test Equipment

(1) Digital Voltmeter
(2) DC Power Supply

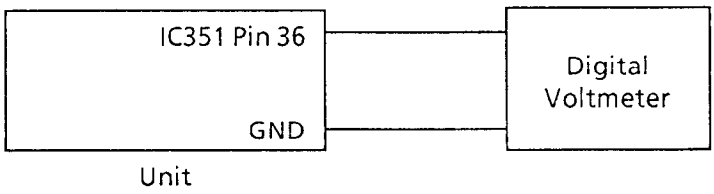
Unit Condition

(1) Disconnect Ni-Cd battery feed 3.8V from power supply terminal.
(2) Connect digital voltmeter across IC351 pin 36 (Hot) and ground.
(3) Change DC power supply from 3.8V →3.4V.
(4) Give a full turn to VR351 at counterclockwise.

Adjust

(1) Adjust VR351 to obtain reading of 0V at digital voltmeter.
(2) Confirm at power supply as follows.

Power supply	Voltmeter reading
3.35V	<0.5V
3.5V	>3.0V



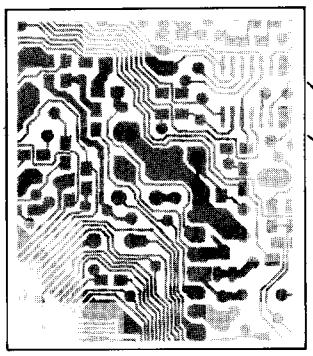
BASE STATION SECTION

Note :

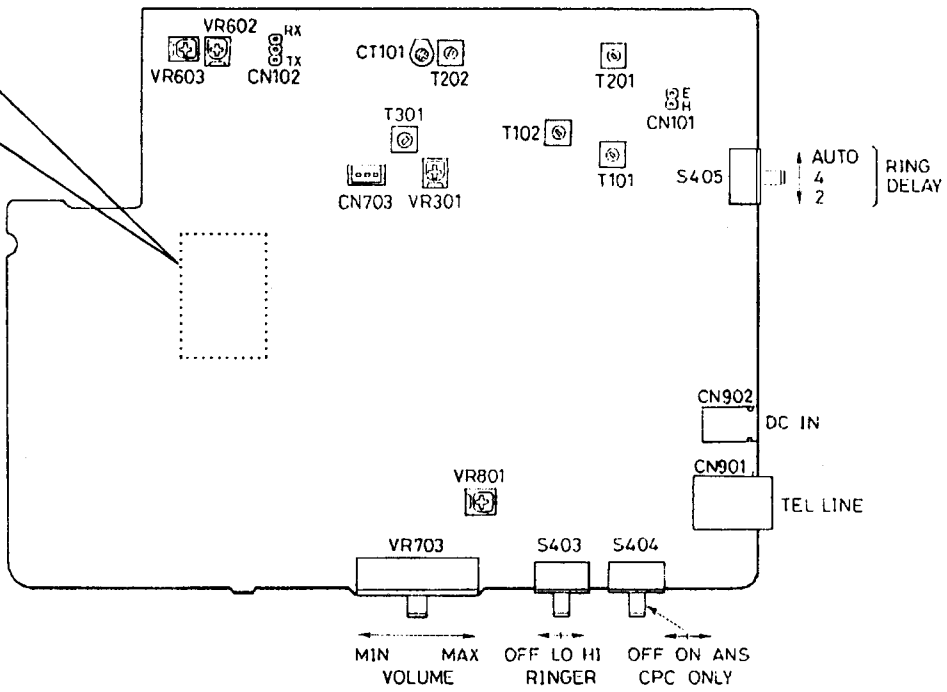
- During adjustment, disconnect the antenna wire from the base station unit.
- Connect the AC Adaptor (DC 9.0 V --- center minus) into the DC jack.

- TEST mode setting :
  Before connecting DC 9V to uni, parform the following operation.
  Push 3 button at once : "STOP" (SW454)
  "PLAY" (SW453)
  "ANSWER" (SW452)
  A beep signal will be heard after DC supply connected.
  Or by shorting "TEST" round (solder side)

PARTS LOCATIONS



SHORT POINT



1. VCO (BASE STATION)

Test Equipment

(1) Digital voltmeter
(2) Frequency Counter

Unit Condition

(1) Setting band : 10 channel (Initial setting)
Select channel 10 by "FFWD" button. Confirm at Frequency Counter.

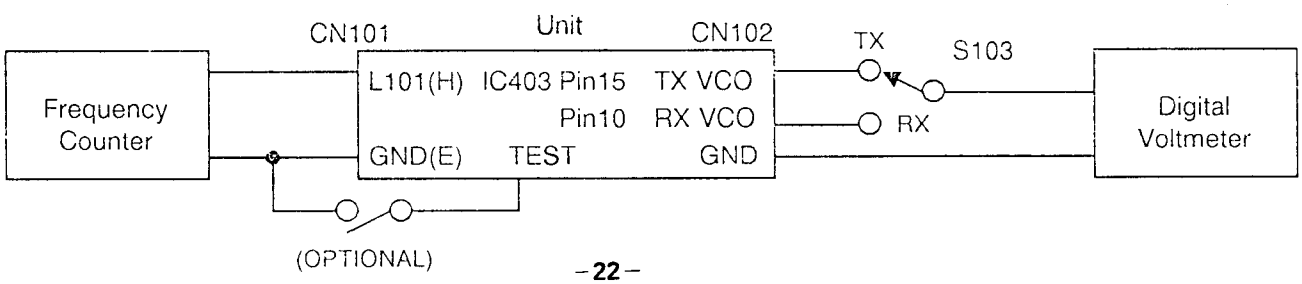
1. TX VCO

(1) Connect a Frequency counter to CN101.
(2) Connect a Digital voltmeter and switch S103 to CN 102.
(3) Set switch S103 to the TX position.
(4) Adjust T202 so that the reading of the Digital voltmeter is 2.5 V ±0.2 V.

2. RX VCO

(1) Connect a Frequency counter to CN101.
(2) Connect a Digital voltmeter and switch S103 to CN 102.
(3) Set switch S103 to the RX position.
(4) Adjust T102 so that the reading of the Digital voltmeter is 2.5 V ±0.2 V.

STEP	CONDITION	ADJUST	ADJUST VALUE	SPECIFICATION
1. TX VCO	S103 : TX SIDE	T202	2.5 V	2.5 ± 0.2V
2. RX VCO	S103 : RX SIDE	T102	2.5 V	2.5 ± 0.2V



2. TRANSMITTING (BASE STATION)

Test Equipment

(1) RF Electronic Voltmeter
(2) Linear detector
(3) Frequency Counter
(4) AF Oscillator
(5) Dummy Load (50 ohm)
(6) AC Adaptor (DC 9V --- center minus)

Unit Condition

(1) Set a S403 "RINGER" to OFF position.
Set a S404 "CPC" to OFF position.

(2) Setting band : 4 channel (30.225 MHz)
Select channel 4 by "FFWD" button pushed four times at speedy. Confirm at Frequency Counter

(3) Push "PLAY" button.

1. TX LEVEL

(1) Connect a RF electronic voltmeter with 50 ohm probe, and switch S104 to the CN101.
(2) Set switch S104 to the CARR position.
(3) Adjust T201 so that the reading of the RF electronic voltmeter is maximum at 50 ohm scale (about 4 dBm typical).

2. TX FREQUENCY

(1) Connect a frequency counter and switch S104 to the CN101.
(2) Set switch S104 to the FREQ position.
(3) Adjust CT101 so that the reading of the frequency counter is 30.225 MHz ±0.5 kHz.

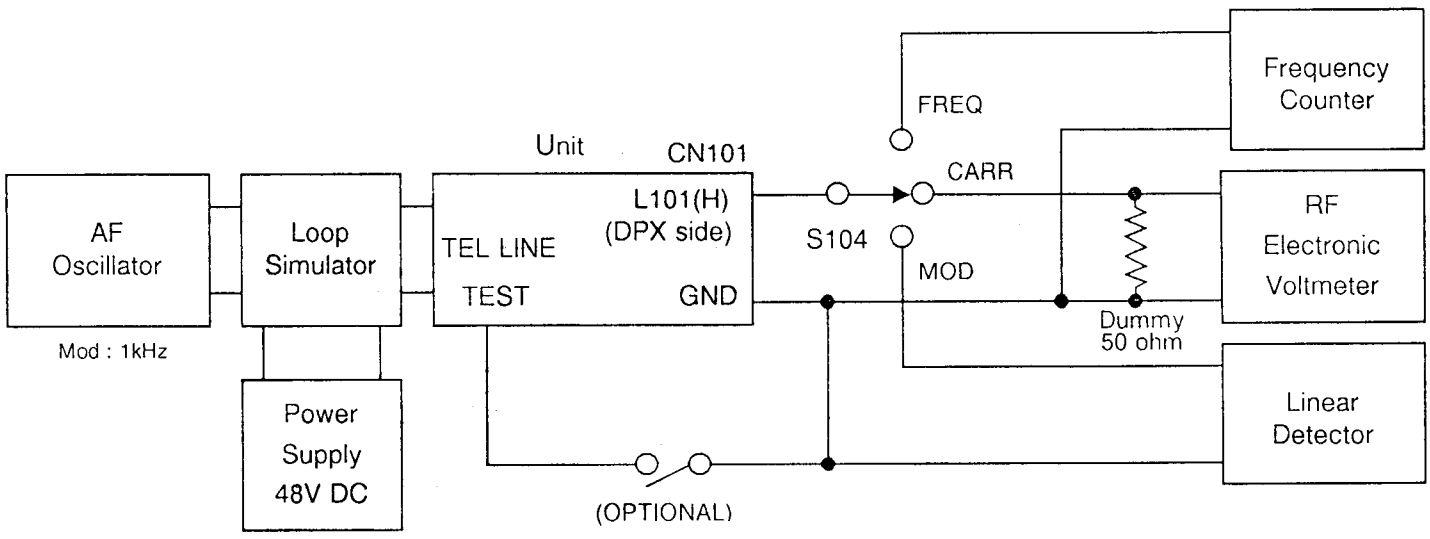
3. TX LINE MODULATION

(1) Connect a Linear detector and switch S104 to CN 101.
(2) Set switch S104 to the MOD position.
(3) Connect an AF oscillator (1kHz) and AF-VTVM to TEL line.
(4) Adjust an AF oscillator so that the reading of the AF-VTVM is -20 dBm.
(5) Adjust VR603 so that the reading of the linear detector is 2.0 kHz ±0.1 kHz dev.

4. TX DATA MODULATION

(1) After TX LINE MODULATION adjustment, push "REW" button.
(2) Adjust VR602 so that the reading of the linear detector is 4.5 kHz ±0.1 kHz dev.

STEP	CONDITION	ADJUST	ADJUST VALUE	SPECIFICATION
1. TX LEVEL	S104 : CARR SIDE	T201	Maximum Level	-4.0 dBm ±1.5 dBm
2. TX FREQUENCY	S104 : FREQ SIDE	CT101	30.225 MHz	30.225 MHz ±0.5 kHz
3. TX LINE MODULATION	S104 : MOD SIDE OSC OUT : -20dBm	VR603	2.0 kHz Dev.	2.0 ±0.1 kHz dev. (1 kHz)
4. TX DATA MODULATION	S104 : MOD SIDE OSC OUT : -20dBm	VR602	4.5 kHz Dev.	4.5 ±0.1 kHz dev. (1 kHz)



3. RECEIVING (BASE STATION)

Test Equipment

(1) FM SSG (50 ohm, OPEN type)
(2) AF VTVM
(3) Distortion meter
(4) Dummy Load (600 ohm)
(5) AC Adaptor (DC 9.0V --- center minus)
(6) Loop Simulator
(7) Power Supply (DC 48V)

Unit Condition

(1) Set a S403 "RINGER" to LO / HI position.
Set a S404 "ANS.ONLY" to ANS. ONLY position.

(2) Setting band : 6 channel (39.800 MHz)
Select channel 6 by "FFWD" button pushed six times at speedy. Confirm at Frequency Counter only when changed a S403 "PULSE / TONE" to PULSE position .

(3) Push "PLAY" button.

1. RX IF

(1) Connect a FM SSG (1 kHz mod., 1.5 kHz dev., 39.800 MHz,, 46dBμ) to the CN101.
(2) Connect an AF-VTVM and distortion meter in parallel and terminate a 600 ohm dummy load across the TEL line.
(3) Adjust T301 so that the reading of the AF voltmeter is maximum level and minimum distortion at distortion meter.

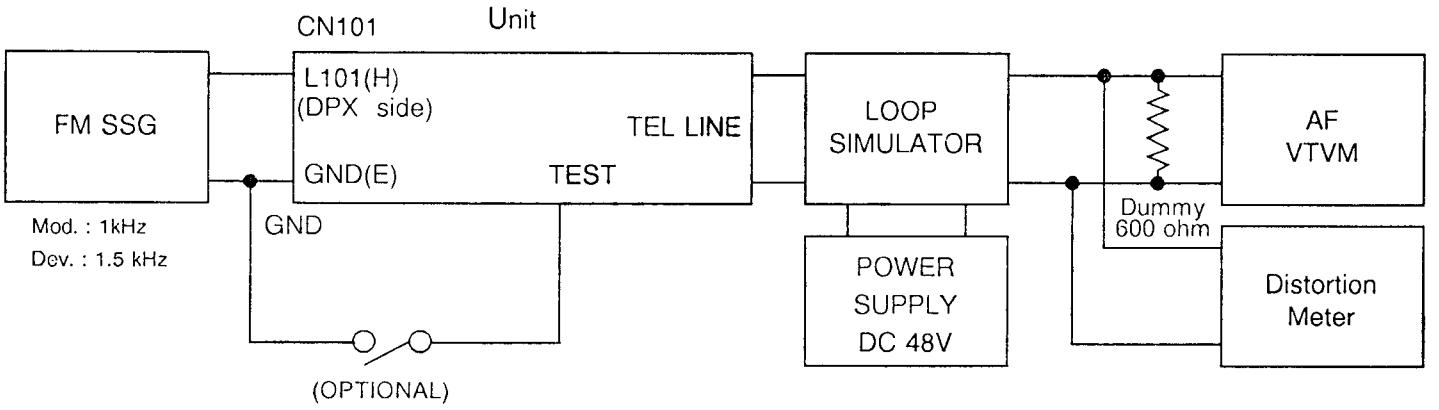
2. RX RF

(1) Connect a FM SSG (46dBμ → 10dBμ) to the CN101.
(2) Adjust T101 so that the reading of the distortion meter is minimum distortion (less than 10%).

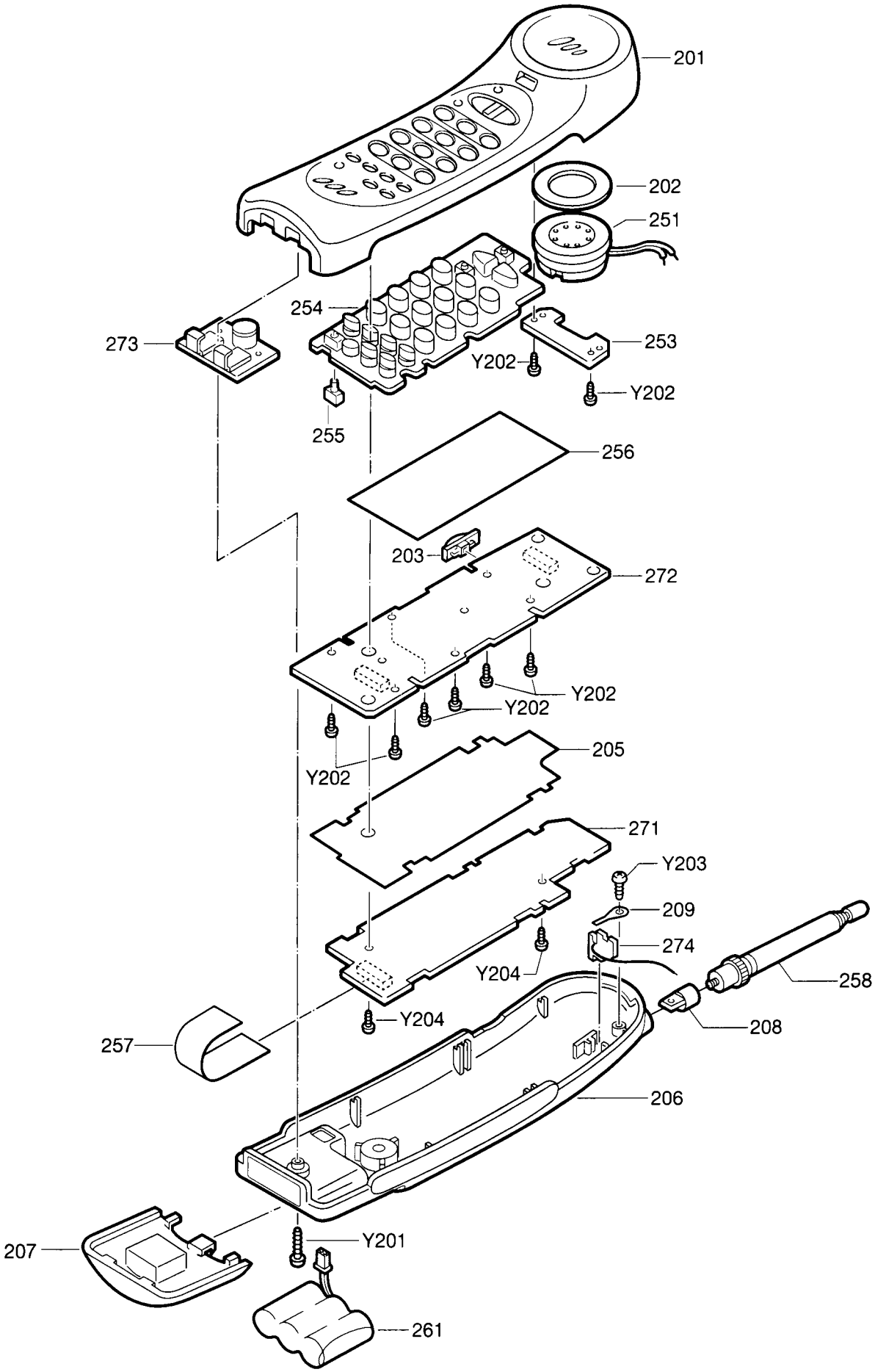
3. RX AF LEVEL

(1) Connect a FM SSG (10dBμ → 46dBμ) to the CN101.
(2) Adjust VR301 so that the reading of the AC voltmeter is -10 dBm ±1 dB at TEL line.

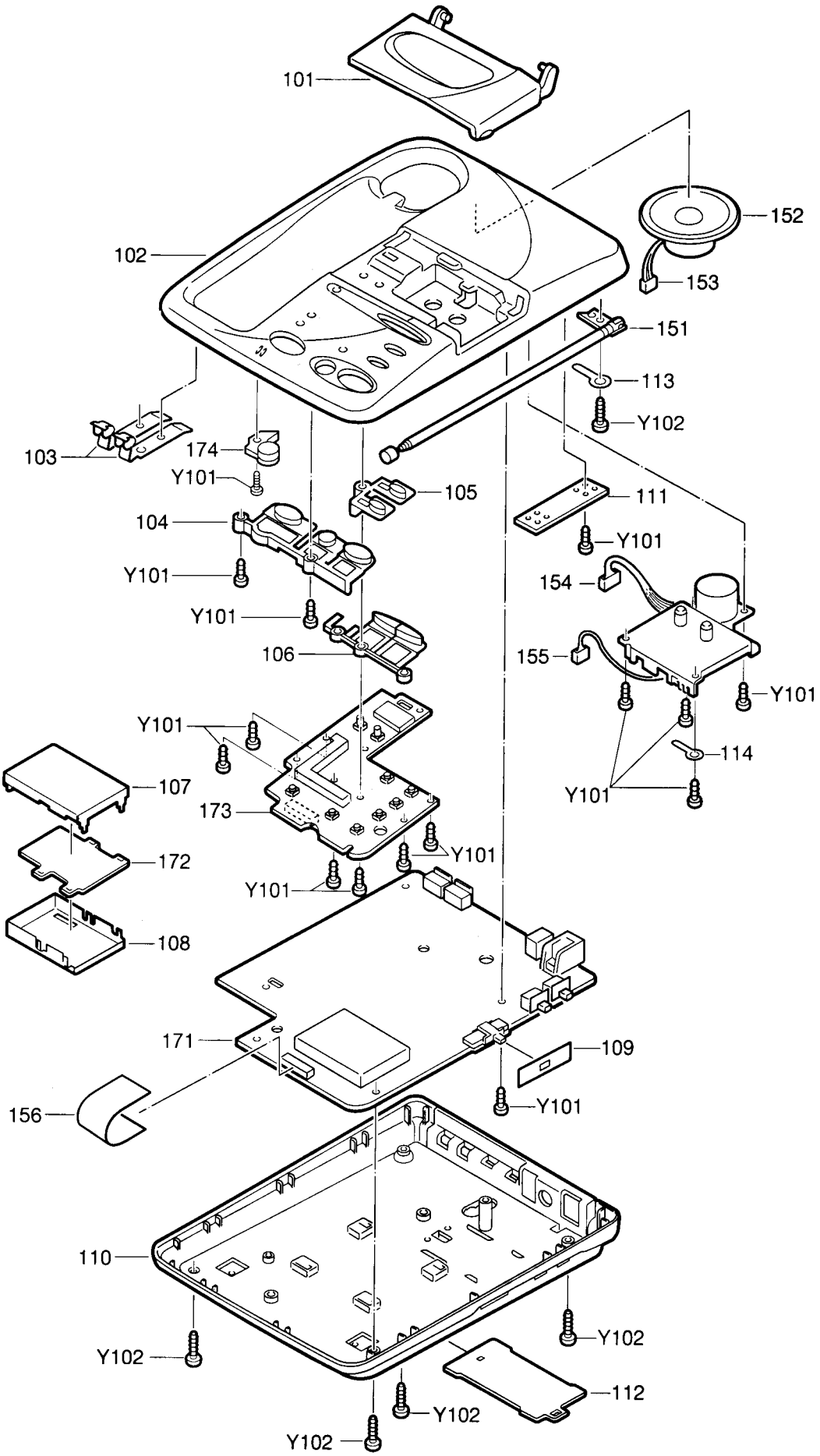
STEP	CONDITION	ADJUST	ADJUST VALUE	SPECIFICATION
1. RX IF	FM SSG : 46dBμ	T301	Maximum Level at Minimum Distortion	------
2. RX RF	FM SSG : 10dBμ	T101	Minimum Distortion	less than 10%
3. RX AF LEVEL	FM SSG : 46dBμ	VR301	-10 dBm	-10 dBm ± 1 dB (1 kHz) -7.5 dBm ± 3 dB (300 Hz) -19 dBm ± 3 dB (3 kHz)



EXPLODED VIEW (HANDSET)



EXPLODED VIEW (BASE STATION)



PRODUCT SAFETY NOTICE

Each precaution in this manual should be followed during servicing. Components identified with the IEC symbol ⚠ in the parts list and the schematic diagram designate components in which safety can be of special significance. When replacing a component identified ⚠, use only the replacement parts designated, or parts with the same ratings of resistance, wattage or voltage that are designated in the parts list in this manual. Leakage-current or resistance measurements must be made to determine that exposed parts are acceptably insulated from the supply circuit before returning the product to the customer.

CAUTION: Regular type resistors and capacitors are not listed. To know those values, refer to the schematic diagram.

PACKING & ACCESSORIES

Ref. No.	Part No.	Description
	614 216 0954	SHEET, SPEED DL
	614 241 6860	LABEL,CAUTION, CRADLE
	614 176 2395	INNER POLYE COVER, REMOTE
	614 176 3200	INNER POLYE COVER, BASE
	614 250 4284	PAD, BACK
	614 250 4291	PAD, FRONT
	614 243 3522	HANGER
	614 237 1572	LABEL,CAUTION
	614 265 2305	NOTICE
	614 265 4347	LABEL,CAUTION, HAND SET
	614 265 4194	LABEL, CRADLE
	614 272 6136	INNER CARTON, PRINT,COATING
	614 272 6228	INSTRUCTION MANUAL
	614 272 6242	INSTRUCTION SHEET
	614 265 3661	CARD,WARRANTY
	614 272 6280	LABEL,IDENTIFICATION, BASE(NZ SUPPLY)
261	⚠614 222 4922	BATTERY,RECHARGE
	⚠645 006 4678	ADAPTOR,AC-DC
	⚠614 256 2949	CORD
	614 245 8983	TAPE,CASSETTE C-30, TE CHCO
	620 197 2597	TAPE,CASSETTE,C-30, OLYMPAS

CABINET & CHASSIS

Ref. No.	Part No.	Description
101	614 250 3881	ASSY,LID,CASSETTE
102	614 255 8287	ASSY,CRADLE, SERVICE
103	614 241 8284	TERMINAL, CHARGE
104	614 250 3980	BUTTON, PAGE/INT ANS/PLAY
105	614 250 4017	BUTTON, STOP/MEMO
106	614 250 4000	BUTTON, FF/REW
107	614 235 4452	SHIELD, FOR-OGM
108	614 235 4469	SHIELD, FOR-OGM
109	614 239 4304	COVER, VOL
110	614 272 5467	ASSY,CABINET,BOTTOM
111	614 250 4093	SPRING,PLATE, TOP LID CLICK
112	614 235 8573	MARKING PLATE, BOTTOM
113	614 129 9082	LUG, ANT
114	614 051 9785	LUG, CONT-MECHA
201	614 247 6673	CABINET, 2ND DIE
202	614 233 3242	CUSHION,RUBBER, SP
203	614 241 7850	KNOB,SLIDE
206	614 272 5535	ASSY,HANDLE
207	614 242 8313	ASSY,LID BATTERY
208	614 256 2482	BRACKET-E, ROD.ANT
254	614 268 3125	SWITCH, DIAL KEY
255	614 248 6436	SWITCH, KEY SUB
	614 265 2350	LABEL, 1/3 MAIN (ACCESS CODE10)
	614 265 2367	LABEL, 1/3 MAIN (ACCESS CODE20)
	614 265 2374	LABEL, 1/3 MAIN (ACCESS CODE30)
	614 268 3484	LABEL, 1/3 CABINET,BOTTOM(AC10)
	614 268 3491	LABEL, 1/3 CABINET,BOTTOM(AC20)
	614 268 3507	LABEL, 1/3 CABINET,BOTTOM(AC30)

FIXING PARTS

Ref. No.	Part No.	Description
Y101	411 021 3107	SCR S-TPG BIN 2.6X8
Y102	411 021 4005	SCR S-TPG BIN 3X12
Y201	411 023 1408	SCR S-TPG PAN 2.6X12, HANDLE
Y202	411 022 7807	SCR S-TPG PAN 2X6
Y203	411 023 3303	SCR S-TPG PAN 2.6X8
Y204	411 022 8408	SCR S-TPG PAN 2X8, MAIN PCB

FIXING PARTS

Ref. No.	Part No.	Description
151	614 228 7118	ANTENNA
152	614 264 9688	SPEAKER
153	614 238 6095	ASSY,CONNECTOR-S, MAIN-SP 2P
154	614 238 6125	ASSY,CONNECTOR-S, MAIN-MECHA 5P
155	614 238 6118	ASSY,CONNECTOR-S, MAIN-HEAD 3P
156	614 238 6194	CORD
209	614 129 9648	LUG, ANT
251	614 252 0581	SPEAKER
253	614 265 3487	PWB, REMOTE-SP
256	614 267 0729	TERMINAL,SHEET SWITCH, DIALKEY
257	614 256 7401	CORD, MAIN-CONT,FPC CORD
258	614 256 2512	ANTENNA,ROD, ANT
or	614 272 4422	ANTENNA,RUBBER, ANT
	614 126 6695	CUSHION, FOR BASE MIC

REMOTE MAIN PWB ASSY

Ref. No.	Part No.	Description
271	614 265 3258	ASSY,PWB, REMOTE MAIN
CN151	614 017 5721	PLUG
or	614 251 0933	PLUG
or	614 251 4283	PLUG
CN651	614 241 0745	SOCKET
CN652	645 004 2881	PLUG,2P
CT451	614 007 6356	TRIMMER
D151	407 157 0202	VARACTOR DI HVU202-30
D251	407 157 0202	VARACTOR DI HVU202-30
D652	407 003 3609	DIODE DAN202K
or	407 008 5400	DIODE MA151WK
IC351	409 322 3506	IC LA8609M
IC451	409 346 3001	IC MC145162D1
IC651	409 238 8305	IC LA8630M
IC681	409 142 2000	IC LA6358NM
or	409 039 6629	IC NJM2904-T2
L451	645 001 4581	INDUCTOR,100U K
Q151	405 045 9108	TR 2SK543-4
Q152	405 015 9701	TR 2SC2814-F4

Ref. No.	Part No.	Description
Q153	405 002 0308	TR 2SA1037K-R
or	405 005 5508	TR 2SA812-M6
or	405 002 6706	TR 2SA1179-M6
Q251	405 015 9701	TR 2SC2814-F4
Q252	405 012 9407	TR 2SC2058S-P
Q253	405 012 9407	TR 2SC2058S-P
Q254	405 008 7509	TR 2SB815-B6
or	405 007 7708	TR 2SB624-BV4
or	405 080 2409	TR 2SB624-BV5
Q351	405 002 0308	TR 2SA1037K-R
or	405 005 5508	TR 2SA812-M6
or	405 002 6706	TR 2SA1179-M6
Q451	405 021 2406	TR 2SD1048-X7
or	405 064 9202	TR 2SD1757K-S
Q651	405 015 8704	TR 2SC2812-L6
or	405 014 4509	TR 2SC2412K-R
or	405 011 1006	TR 2SC1623-L6
SP651	614 234 9618	BUZZER
T151	645 007 0228	TRANS,ANT,30MHZ
T152	614 252 7481	TRANS,OSC
T251	645 007 0242	TRANS,ANT,40MHZ
T252	645 007 0235	TRANS,ANT,40MHZ
T253	645 007 0266	TRANS,OSC,40MHZ
T351	614 241 6754	TRANS,IF
VR351	645 006 2421	VR,SEMI,20K N
VR352	645 001 9319	VR,SEMI,10K N
VR651	645 001 9326	VR,SEMI,100K N
X451	614 231 4326	RESONATOR,XTAL
XF151	614 265 3579	FILTER,LC
XF351	614 030 5074	I.F FILTER
or	614 030 5081	I.F FILTER
or	614 030 5098	I.F FILTER
or	614 030 5104	I.F FILTER
XF352	614 030 6675	I.F FILTER

REMOTE MIC PWB ASSY

Ref. No.	Part No.	Description
273	614 265 3265	ASSY,PWB, REMOTE MIC
CN653	614 237 1619	ASSY,CONNECTOR-S
CN654	614 262 4654	TERMINAL
CN655	614 262 4654	TERMINAL
D651	407 099 6102	ZENER DIODE MTZJ10B
or	407 065 1704	ZENER DIODE GZS10Y
D951	407 099 5808	ZENER DIODE MTZJ7.5A
L951	645 001 4581	INDUCTOR,100U K
MC651	614 001 6314	MIC

REMOTE MIC PWB ASSY

Ref. No.	Part No.	Description
274	614 265 3272	ASSY,PWB, REMOTE ANT
L151	645 001 5441	INDUCTOR,2.2U K

REMOTE CONTROL PWB ASSY

Ref. No.	Part No.	Description
272	614 265 3241	ASSY,PWB, REMOTE CONT
CN001	645 007 1447	PLUG,2P
CN002	614 254 2682	SOCKET
or	614 260 2362	SOCKET
D002	407 117 5001	LED BR1102W
D003	407 117 5001	LED BR1102W
D005	407 003 3609	DIODE DAN202K
or	407 008 5400	DIODE MA151WK
D006	407 126 5702	LED PG1101W
D007	407 126 5702	LED PG1101W
D008	407 126 5702	LED PG1101W
D009	407 126 5702	LED PG1101W
D010	407 126 5702	LED PG1101W
D011	407 126 5702	LED PG1101W
D016	407 004 0102	DIODE DCA010
or	407 003 4507	DIODE DAP202K
D017	407 003 3609	DIODE DAN202K
or	407 008 5400	DIODE MA151WK
D018	407 117 5001	LED BR1102W
IC001	410 224 0906	IC LC66358B-4E99
IC003	409 186 4107	IC RH5VA31CA
or	409 311 1902	IC RH5VL31CA
Q001	405 002 0308	TR 2SA1037K-R
or	405 005 5508	TR 2SA812-M6
or	405 002 6706	TR 2SA1179-M6
Q002	405 002 0308	TR 2SA1037K-R
or	405 005 5508	TR 2SA812-M6
or	405 002 6706	TR 2SA1179-M6
Q006	405 021 2406	TR 2SD1048-X7
or	405 064 9202	TR 2SD1757K-S
Q007	405 008 7509	TR 2SB815-B6
or	405 007 7708	TR 2SB624-BV4
or	405 080 2409	TR 2SB624-BV5
Q008	405 015 8704	TR 2SC2812-L6
or	405 014 4509	TR 2SC2412K-R
or	405 011 1006	TR 2SC1623-L6
Q010	405 015 8704	TR 2SC2812-L6
or	405 014 4509	TR 2SC2412K-R
Q011	405 015 8704	TR 2SC2812-L6
or	405 014 4509	TR 2SC2412K-R
Q012	405 015 8704	TR 2SC2812-L6
or	405 014 4509	TR 2SC2412K-R
or	405 011 1006	TR 2SC1623-L6
Q013	405 015 8704	TR 2SC2812-L6
or	405 014 4509	TR 2SC2412K-R
or	405 011 1006	TR 2SC1623-L6
Q014	405 000 0409	TR DTA114EK
or	405 104 8806	TR FN1A4M
Q015	405 000 3608	TR DTC114YK
Q016	405 002 0308	TR 2SA1037K-R
or	405 005 5508	TR 2SA812-M6
or	405 002 6706	TR 2SA1179-M6
S001	614 237 1053	SWITCH
or	614 253 0955	SWITCH,SLIDE
X001	614 231 4333	RESONATOR,XTAL 4.15MHZ

BASE OGM PWB ASSY

Ref. No.	Part No.	Description
172	614 234 8284	ASSY,PCB,BASE-OGM, BASE-OGM
CN430	614 239 5448	PLUG
IC430	409 260 8809	IC MSM6388GS-V1
IC431	409 304 9304	IC MSM6587JS, BASE OGM
X430	614 035 1613	CERAMIC RESONATOR
	614 219 0234	SHEET, FOR-OGM

BASE MCONTROL PWB ASSY

Ref. No.	Part No.	Description
173	614 250 3782	ASSY,PCB-W, BASE CONT
CN451	614 239 1570	SOCKET, CONT-MAIN 13P
D450	408 016 8506	LED SLZ-135B-08-T1, CHARGE
D451	408 015 8903	LED SLZ-135B-12-T1, IN USE
D452	408 015 8804	LED SLZ-135B-02-T1, INT
D453	408 015 8903	LED SLZ-135B-12-T1, ANSWER
D454	407 037 3507	LED SLP-165B-51-C, POWER
or	407 037 3408	LED SLP-165B-51-B, POWER
or	407 037 3309	LED SLP-165B-51-A, POWER

PARTS LIST

Ref. No.	Part No.	Description
D456	407 066 7606	DIODE SB007-03CP
or	407 146 9001	DIODE RB421D
D457	407 066 7606	DIODE SB007-03CP
or	407 146 9001	DIODE RB421D
D458	407 066 7606	DIODE SB007-03CP
or	407 146 9001	DIODE RB421D
SW451	614 220 5617	SWITCH,TACT, ERASE
SW452	614 220 5631	SWITCH,TACT, ANSWER
SW453	614 220 5631	SWITCH,TACT, PLAY
SW454	614 220 5631	SWITCH,TACT, STOP
SW455	614 220 5631	SWITCH,TACT, MEMO REC
SW456	614 220 5617	SWITCH,TACT, OGM REC
SW457	614 220 5631	SWITCH,TACT, INT
SW458	614 220 5631	SWITCH,TACT, FF
SW459	614 220 5631	SWITCH,TACT, REW
	614 235 4483	SPACER, FOR POWER LED
	614 235 4476	SPACER, FOR LED L-ANGLE
	645 006 4425	FIXER

BASE MIC PWB ASSY

Ref. No.	Part No.	Description
174	614 263 7272	ASSY,PWB, BASE-MIC
CN704	614 035 4911	SOCKET,DIP 2P
or	614 237 9752	SOCKET
D701	407 053 2607	ZENER DIODE MTZ10B
or	407 065 1704	ZENER DIODE GZS10Y
MIC01	614 245 4275	MICROPHONE

BASE MAIN PWB ASSY

Ref. No.	Part No.	Description
171	614 272 2466	ASSY,PWB, BASE-MAIN
C402	403 135 3609	ELECT 2200U M 6.3V
C403	403 196 4102	ELECT 1000U M 6.3V
C422	403 038 7407	ELECT 220U M 6.3V
C704	403 200 8300	ELECT 1000U M 10V
C901	⚠403 118 3008	MT-POLYEST 0.1U K 250V
or	⚠403 283 1700	MT-POLYEST 0.1U K 250V
C905	403 200 6900	ELECT 1000U M 16V
CN101	614 225 6213	PLUG
or	614 251 0926	PLUG
or	614 251 4276	PLUG
CN102	614 017 5721	PLUG
or	614 251 0933	PLUG
or	614 251 4283	PLUG
CN401	614 227 7935	SOCKET,13P
CN701	645 004 2881	PLUG,2P
CN702	614 035 4911	SOCKET,DIP 2P
or	614 237 9752	SOCKET
CN703	645 004 2898	PLUG,3P
CN801	645 004 2911	PLUG,5P
CN901	⚠645 009 3838	JACK MODULAR 2
CN902	614 035 9091	SOCKET
or	614 253 0931	JACK
CT101	614 007 6356	TRIMMER
D102	407 051 6805	ZENER DIODE GZS5.1Z
or	407 063 8705	ZENER DIODE MTZJ5.1C
D201	407 129 9103	DIODE 1SV136A02
D401	407 003 4507	DIODE DAP202K
D403	407 012 4406	DIODE 1SS133
or	407 007 9904	DIODE GMA01
D404	407 012 4406	DIODE 1SS133
or	407 007 9904	DIODE GMA01
D405	407 012 4406	DIODE 1SS133
or	407 007 9904	DIODE GMA01
D406	407 012 4406	DIODE 1SS133
or	407 007 9904	DIODE GMA01

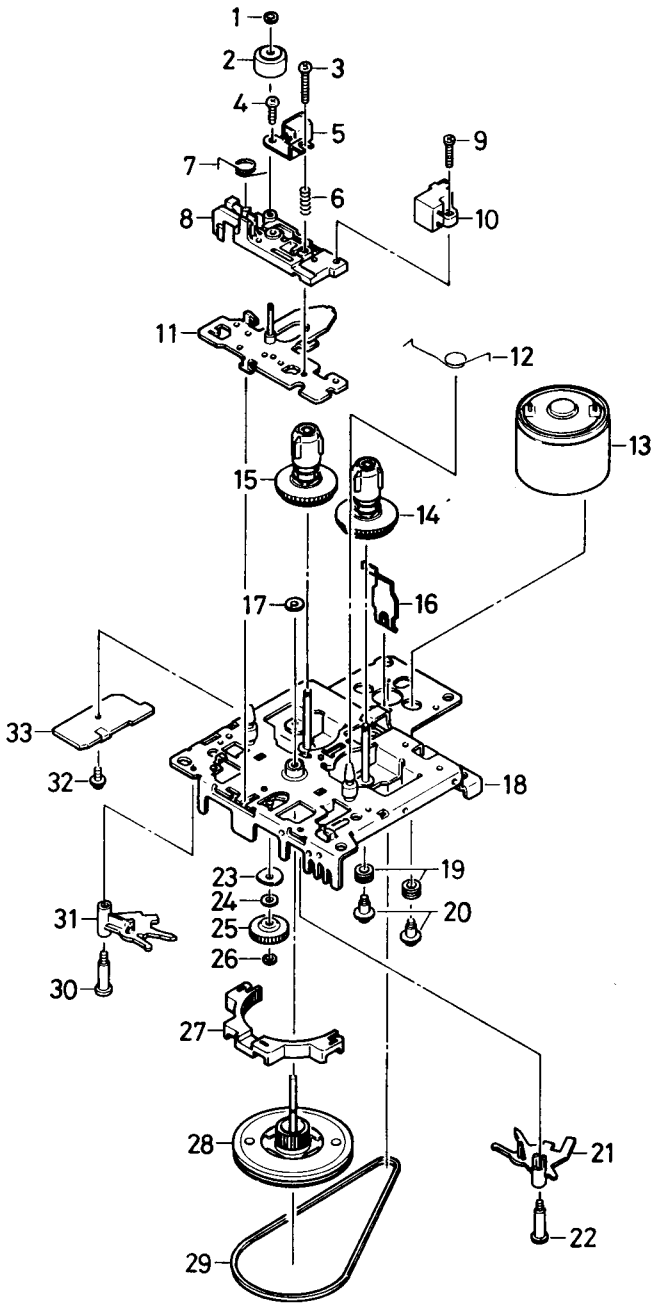
Ref. No.	Part No.	Description
D407	407 012 4406	DIODE 1SS133
or	407 007 9904	DIODE GMA01
D408	407 012 4406	DIODE 1SS133
or	407 007 9904	DIODE GMA01
D409	407 150 7703	DIODE RB441Q
or	407 111 3805	DIODE MA723
D412	407 003 3609	DIODE DAN202K
or	407 008 5400	DIODE MA151WK
D413	407 012 4406	DIODE 1SS133
or	407 007 9904	DIODE GMA01
D414	407 012 4406	DIODE 1SS133
or	407 007 9904	DIODE GMA01
D417	407 003 3609	DIODE DAN202K
or	407 008 5400	DIODE MA151WK
D700	407 012 4406	DIODE 1SS133
or	407 007 9904	DIODE GMA01
D702	407 066 7606	DIODE SB007-03CP
or	407 146 9001	DIODE RB421D
D705	407 053 2607	ZENER DIODE MTZ10B
or	407 065 1704	ZENER DIODE GZS10Y
D801	407 079 7501	DIODE SB02-03C
D901	⚠407 078 1906	ZENER DIODE MTZ39A
or	⚠407 078 2002	ZENER DIODE MTZ39B
or	⚠407 078 2101	ZENER DIODE MTZ39C
or	⚠407 070 5605	ZENER DIODE GZS39X
or	⚠407 070 5704	ZENER DIODE GZS39Y
or	⚠407 070 5803	ZENER DIODE GZS39Z
D902	⚠407 078 1906	ZENER DIODE MTZ39A
or	⚠407 078 2002	ZENER DIODE MTZ39B
or	⚠407 078 2101	ZENER DIODE MTZ39C
or	⚠407 070 5605	ZENER DIODE GZS39X
or	⚠407 070 5704	ZENER DIODE GZS39Y
or	⚠407 070 5803	ZENER DIODE GZS39Z
D903	407 053 5806	ZENER DIODE MTZ4.7B
D904	407 070 8101	ZENER DIODE GZS8.2Y
or	407 063 9504	ZENER DIODE MTZJ8.2B
D905	⚠407 003 9304	DIODE DBB10E
D908	407 012 4406	DIODE 1SS133
or	407 007 9904	DIODE GMA01
D910	407 012 4406	DIODE 1SS133
or	407 007 9904	DIODE GMA01
D911	407 012 4406	DIODE 1SS133
or	407 007 9904	DIODE GMA01
D912	407 053 3208	ZENER DIODE MTZ12B
or	407 051 4306	ZENER DIODE GZS12Y
D999	⚠408 022 7104	VARISTOR ERZTC4AK220
IC301	409 343 6708	IC MC13135DW
IC302	409 142 2000	IC LA6358NM
or	409 039 6629	IC NJM2904-T2
IC401	410 224 1606	IC LC66512B-4F00
IC402	409 243 4200	IC MN1380-R
IC403	409 346 3001	IC MC145162D1
IC405	409 120 5603	IC MC74HC373F
IC406	409 138 2502	IC LC7366NM
IC601	409 065 9308	IC MC14069UBF
IC602	409 248 1204	IC LA8632M-R
IC603	409 142 2000	IC LA6358NM
or	409 039 6629	IC NJM2904-T2
IC701	409 199 4705	IC MC14066BF
IC702	409 201 7403	IC LA2805M
IC704	409 205 5900	IC LC7385M-R
IC801	409 084 7804	IC LA5550M
IC901	⚠407 171 3302	PHOTO COUPLE PC724V
IC902	⚠614 002 4500	PHOTO COUPLER
or	⚠407 002 6908	PHOTO COUPLE TLP521-1GB
or	⚠407 101 8209	PHOTO COUPLE PS2501-1

Ref. No.	Part No.	Description
IC903	⚠409 040 7404	IC PC814
or	⚠409 204 4607	IC TLP520-GB
or	⚠407 121 1204	PHOTO COUPLE PS2505-1
IC904	409 027 1203	IC L7806
or	409 267 0509	IC NJM7806FA
or	409 281 6501	IC RC7806FA
L101	645 001 5441	INDUCTOR,2.2U K
L102	645 001 4581	INDUCTOR,100U K
L103	614 249 7715	INDUCTOR
L801	645 004 0337	INDUCTOR,8.2U K
L901	645 001 5519	INDUCTOR,47U K
L902	645 004 0382	INDUCTOR,22U K
L903	⚠614 027 6992	CHOKE
L904	⚠614 027 6992	CHOKE
NL901	614 002 4821	VARISTOR
Q101	405 035 8708	TR 2SK544-E
Q201	405 012 9407	TR 2SC2058S-P
Q202	405 012 9407	TR 2SC2058S-P
Q301	405 015 8704	TR 2SC2812-L6
or	405 014 4509	TR 2SC2412K-R
Q401	405 002 0308	TR 2SA1037K-R
or	405 005 5508	TR 2SA812-M6
or	405 002 6706	TR 2SA1179-M6
Q402	405 000 0409	TR DTA114EK
Q403	405 000 2908	TR DTC114EK
Q701	405 015 8704	TR 2SC2812-L6
or	405 014 4509	TR 2SC2412K-R
Q702	405 015 8704	TR 2SC2812-L6
or	405 014 4509	TR 2SC2412K-R
Q703	405 015 8704	TR 2SC2812-L6
or	405 014 4509	TR 2SC2412K-R
Q704	405 002 0308	TR 2SA1037K-R
or	405 005 5508	TR 2SA812-M6
or	405 002 6706	TR 2SA1179-M6
Q705	405 015 8704	TR 2SC2812-L6
or	405 014 4509	TR 2SC2412K-R
Q707	405 021 2406	TR 2SD1048-X7
or	405 064 9202	TR 2SD1757K-S
Q708	405 015 8704	TR 2SC2812-L6
or	405 014 4509	TR 2SC2412K-R
Q709	405 015 8704	TR 2SC2812-L6
or	405 014 4509	TR 2SC2412K-R
Q710	405 015 8704	TR 2SC2812-L6
or	405 014 4509	TR 2SC2412K-R
Q711	405 015 8704	TR 2SC2812-L6
or	405 014 4509	TR 2SC2412K-R
Q712	405 002 0308	TR 2SA1037K-R
or	405 005 5508	TR 2SA812-M6
or	405 002 6706	TR 2SA1179-M6
Q713	405 015 8704	TR 2SC2812-L6
or	405 014 4509	TR 2SC2412K-R
Q714	405 015 8704	TR 2SC2812-L6
or	405 014 4509	TR 2SC2412K-R
Q801	405 008 2405	TR 2SB698-F
Q802	405 008 2405	TR 2SB698-F
Q803	405 015 8704	TR 2SC2812-L6
or	405 014 4509	TR 2SC2412K-R
Q901	405 015 8704	TR 2SC2812-L6
or	405 014 4509	TR 2SC2412K-R
Q902	405 015 8704	TR 2SC2812-L6
or	405 014 4509	TR 2SC2412K-R
Q903	405 015 8704	TR 2SC2812-L6
or	405 014 4509	TR 2SC2412K-R
Q904	405 018 0101	TR 2SC3331-T
Q905	405 015 8704	TR 2SC2812-L6
or	405 014 4509	TR 2SC2412K-R

Ref. No.	Part No.	Description
Q906	405 008 7509	TR 2SB815-B6
or	405 007 7708	TR 2SB624-BV4
or	405 080 2409	TR 2SB624-BV5
Q907	405 015 8704	TR 2SC2812-L6
or	405 014 4509	TR 2SC2412K-R
Q909	405 015 8704	TR 2SC2812-L6
or	405 014 4509	TR 2SC2412K-R
Q910	405 024 5008	TR 2SD612K-F
Q911	405 008 7509	TR 2SB815-B6
or	405 007 7708	TR 2SB624-BV4
or	405 080 2409	TR 2SB624-BV5
R908	⚠402 046 9205	RESISTOR 27 J- 1/2W
R909	401 022 3008	CARBON 6.8K JA 1/4W
R912	⚠401 016 4707	CARBON 22K JA 1/4W
R913	402 048 0002	RESISTOR 47 J- 1W
R927	⚠402 048 4901	RESISTOR 47 J- 1W
RY901	⚠614 252 6750	RELAY
S403	614 234 8659	SWITCH,SLIDE
or	614 259 9792	SWITCH,SLIDE
S404	614 234 8659	SWITCH,SLIDE
or	614 259 9792	SWITCH,SLIDE
S405	614 234 8659	SWITCH,SLIDE
or	614 259 9792	SWITCH,SLIDE
T101	614 252 7580	TRANS,RF
T102	614 252 7504	TRANS,OSC
T201	614 252 7566	TRANS,RF
T202	614 252 7511	TRANS,OSC
T301	614 030 3643	I.F.T
or	614 252 2721	I.F.T
T901	614 252 4343	TRANS
VR301	645 006 2421	VR,SEMI,20K N
VR602	645 006 2483	VR,SEMI,500K N
VR603	645 006 2421	VR,SEMI,20K N
VR703	614 232 4943	VR,SLIDE
VR801	645 006 2414	VR,SEMI,2K N
X101	614 231 4326	RESONATOR,XTAL
X401	614 231 4333	RESONATOR,XTAL 4.15MHZ
X701	614 253 6308	RESONATOR CERAMIC
XF101	614 265 3586	FILTER,LC
XF301	614 030 5074	I.F FILTER
or	614 030 5081	I.F FILTER
or	614 030 5098	I.F FILTER
or	614 030 5104	I.F FILTER
XF302	614 261 3771	FILTER

MEMO

EXPLODED VIEW & PARTS LIST (TAPE MECHANISM)



TAPE MECHANISM (TM-CAS1200MEC/SP)

Ref. No.	Part No.	Description
1	412 044 6908	WASHER,SPECIAL, CUT 1.6X3.2X0.25T
2	614 238 6293	PINCH ROLLER
3	412 044 7202	SCREW,SPECIAL,3P 1.7X12
4	412 044 1200	SCREW,SPECIAL,3P 1.7X5.5
5	614 238 6361	HEAD,RECORD/PLAYBACK
6	614 237 3286	SPRING,COMP,AZIMUTH
7	614 238 6354	SPRING,WIRE,PINCH
8	614 238 6248	BASE,HEAD SPACER
9	412 044 7103	SCREW,SPECIAL,3P 1.7X6.5
10	614 238 6378	HEAD,ERASE,DM-390
11	614 238 9416	ASSY,SLIDE,HEAD BASE
12	614 238 6347	SPRING,WIRE,HEAD BASE
13	614 238 9362	ASSY,MOTOR,MM5B60T24-1-K
14	614 238 9393	ASSY,REEL,SUPPLY
15	614 238 9386	ASSY,REEL,TAKEUP
16	614 238 6330	SPRING,PLATE,CST HOLDER
17	412 044 7004	WASHER,SPECIAL, CUT 1.26X2.5X0.5T
18	614 238 9379	ASSY,CHASSIS,MECHANISM BASE
19	614 238 6255	CUSHION,RUBBER,MOTOR FIX
20	412 044 7400	SCREW,SPECIAL,MOTOR FIX
21	614 238 6316	LEVER,REVIEW ARM
22	412 044 7301	SCREW,SPECIAL,ARM
23	614 238 6323	SPRING,PLATE,FRICTION
24	412 044 6700	WASHER,SPECIAL,2.1X3.5X0.18T
25	614 238 6279	GEAR,FWD
26	412 044 6809	WASHER,SPECIAL, CUT 1.6X3.2X0.25T
27	614 238 6262	GEAR,POWER
28	614 238 9409	ASSY,FLYWHEEL
29	614 238 6286	BELT,SQUARE,V-15
30	412 044 7301	SCREW,SPECIAL,PLAY ARM FIX
31	614 238 6309	LEVER,PLAY ARM
32	412 044 7509	SCREW,SPECIAL,PWB FIX

TAPE SENSOR P. W. BOARD ASSY

Ref. No.	Part No.	Description
33	614 238 9331	ASSY,PWB,SENSOR (TAPE MECHANISM)
PC1	407 149 5307	SENSOR NJL5161K,TAPE END

IC BLOCK DESCRIPTION (PIN NAME & FUNCTION)

IC001 LC66358B (Micro Processor for Handset)

No.	Signal Name	Description of Function	Active	I / O
1	P11	Key Matrix Strobe Out		O
2	P12	Key Matrix Strobe Out		O
3	P13	Key Matrix Strobe Out		O
4	P20	Key Matrix Strobe Out		O
5	RX+B2	Not Used (Open)		O
6	NC	Non Connection		
7	RX POWER	RX Power Control	LOW	O
8	RX DATA	RX Data Input		I
9	TX MUTE	TX Mute Control	LOW	O
10	BUZZER	Buzzer Sound Control		O
11	TX POWER 1	TX Power Control 1	LOW	O
12	HOLD	Not Used (Pull Up)		I
13	DIAL LED	Dial LED Control	LOW	O
14	RX MUTE	RX Mute Control	LOW	O
15	TEST	Not Used (Low)		
16	V_{SS}	Power Source (GND)		
17	OSC 1	System Clock In		I
18	NC	Non Connection		
19	NC	Non Connection		
20	OSC 2	System Clock Out		O
21	RESET	System Reset Input	LOW	I
22	RX VOL	RX Volume Control		O
23	TX POWER 2	TX Power Control 2	LOW	O
24	BATLOW LED	Battery Low LED Control	LOW	O
25	TALK LED	Talk LED Control	LOW	O
26	KEY MON	Key Monitor Signal Output		O
27	REMOTE LED	Remote LED Control		O
28	PLL DATA	IC451 Channel Select		O
29	PLL CLK	IC451 Channel Select		O
30	NC	Non Connection (Open)		
31	LOCK	PLL Lock Change	LOW	O
32	PLL EN	IC451 Channel Select		O
33	TX DATA 2	TX Data -		O
34	TX DATA 1	TX Data +		O
35	BATT LOW	Battery Low Detect	LOW	I
36	CHARGE	Charge Detect	LOW	I
37	TEST 1	Normal TEST mode	LOW	I
38	TEST 2	Self Check TEST mode	LOW	I
39	V_{DD}	Power Source (+B)		
40	RING SW	Ringer Switch Input		I
41	US / AUS	Model Selector (Low)		I
42	NC	Non Connection		
43	NC	Non Connection		
44	P00	Key Matrix Input		I
45	P01	Key Matrix Input		I
46	P02	Key Matrix Input		I
47	P03	Key Matrix Input		I
48	P10	Key Matrix Strobe Out		O

Key Matrix

	P10	P11	P12	P13	P20
P03	1	2	3	TALK	END
P02	4	5	6	FLASH	SCAN
P01	7	8	9	REDIAL	MEMORY
P00	*	0	#	INT	REMOTE

IC401 LC66512B (Micro Processor for Base-Station)

No.	Signal Name	Description of Function	Active	I / O
1	P40	Latch Data / Key Scan		O
2	P41	Latch Data / Key Scan		O
3	P42	Latch Data / Key Scan		O
4	P43	Latch Data / Key Scan		O
5	P50	Latch Data / Key Scan		O
6	P51	Latch Data / Key Scan		O
7	P52	Latch Data / Key Scan		O
8	P53	Latch Data / Key Scan		O
9	RE CODE 0	Remote Code Select Switch		I
10	RE CODE 1	Remote Code Select Switch		I
11	TX DATA 1	TX Data Output +		O
12	TX DATA 2	TX Data Output -		O
13	D0	D0 Control to IC702		O
14	D0S	D0S Control to IC702		O
15	D1	D1 Control to IC702		O
16	D1S	D1S Control to IC702		O
17	INT CNT	Intercom Signal Switch	HIGH	O
18	LIN CNT	TEL-Line Signal Switch	HIGH	O
19	MUTE	Muting Control to IC702	HIGH	O
20	D2	D2 Control of IC702		O
21	TX POWER 2	TX Power Control 2	LOW	O
22	TEST	Not Used (Low)		
23	V_{SS}	Power Source (GND)		
24	OSC1	System Clock In		I
25	OSC2	System Clock Out		O
26	RESET	System Reset Input	LOW	I
27	TX MUTE	TX Mute	LOW	O
28	TX CNT	Mic Signal Switch	HIGH	O
29	RNG LVL	Ringer Level Control		O
30	IN USE LED	IN USE LED Control	LOW	O

IC BLOCK DESCRIPTION (PIN NAME & FUNCTION)

No.	Signal Name	Description of Function	Active	I / O
31	INT LED	INT LED Control	LOW	O
32	LATCH 3	Latch (DTMF Generator) Control	HIGH	O
33	RX MUTE	RX Mute Control	LOW	O
34	CHARGE LED	CHARGE LED Control	LOW	O
35	ANS LED	ANSWER LED Control	LOW	O
36	EARTH OUT	Earth Out Control		O
37	ST-SP	Start Control to IC430	HIGH	O
38	PLL DATA	Channel Select to IC403		O
39	PLL CLK	Channel Select to IC403		O
40	PC2	Not Used (Low)		I
41	PLL EN	Channel Select to IC403		O
42	CHARGE	Charge Detect of Handset	LOW	I
43	RING CP	Ringer / CPC Signal Input (L : RING)		I
44	DIS CCT	Branch Check	LOW	I
45	MON	Busy Input from IC430	LOW	I
46	REEL PULSE	Rotate Detect	LOW	I
47	VOX	VOX Signal Input	LOW	I
48	P00	Key Scan / Data Input from IC704		I
49	P01	Key Scan / Data Input from IC704		I

No.	Signal Name	Description of Function	Active	I / O
50	P02	Key Scan / Data Input from IC704		I
51	P03	Key Scan / Data Input from IC704		I
52	CW	Motor Control L to IC801		O
53	CCW	Motor Control R to IC801		O
54	RELAY	TEL-Line Control	HIGH	O
55	E HEAD	Erase Head Control	LOW	O
56	V_{DD}	Power Source (+ B)		
57	TX POWER 1	TX Power Control 1	LOW	O
58	M / B	Make / Break Switch (High = 33%, Low = 39%)		I
59	STD	DTMF Receiver Input from IC704	LOW	I
60	RX DATA	RX Data Input		I
61	REC / PLAY	REC / PLAY Control to IC430 (L : PLAY)		O
62	RING O	Buzzer Sound Output		O
63	TEST	Test Mode Switch	LOW	I
64	AC CHECK	AC Power Check	LOW	I

Key Matrix **[ ] : Slide Switch**

	P40	P41	P42	P43	P50	P51
P00	ANS SET	OGM REC		[ANS-ONLY 1]	[TONE / PULSE]	
P01	PLAYBACK	PAGE / INT		[ANS-ONLY 2]		[EARTH]
P02	STOP	FFWD	ERASE	[RING DELAY 1]	[RINGER 1]	[FLASH 1]
P03	MEMO REC	REW		[RING DELAY 2]	[RINGER 2]	[FLASH 2]

Key Matrix (ANSWER)

	ANS-ONLY 1	ANS-ONLY 2
ANS ONLY	×	×
CPC ON	×	○
CPC OFF	○	×

Key Matrix (RINGER)

	RINGER 1	RINGER 2
OFF	×	×
LOW	×	○
HIGH	○	×

Key Matrix (RING DELAY)

	RING DELAY 1	RING DELAY 2
AUTO	×	×
4 TIME	×	○
2 TIME	○	×

Note ; ○ → Short, × → Open

IC BLOCK DESCRIPTION (PIN NAME & FUNCTION)

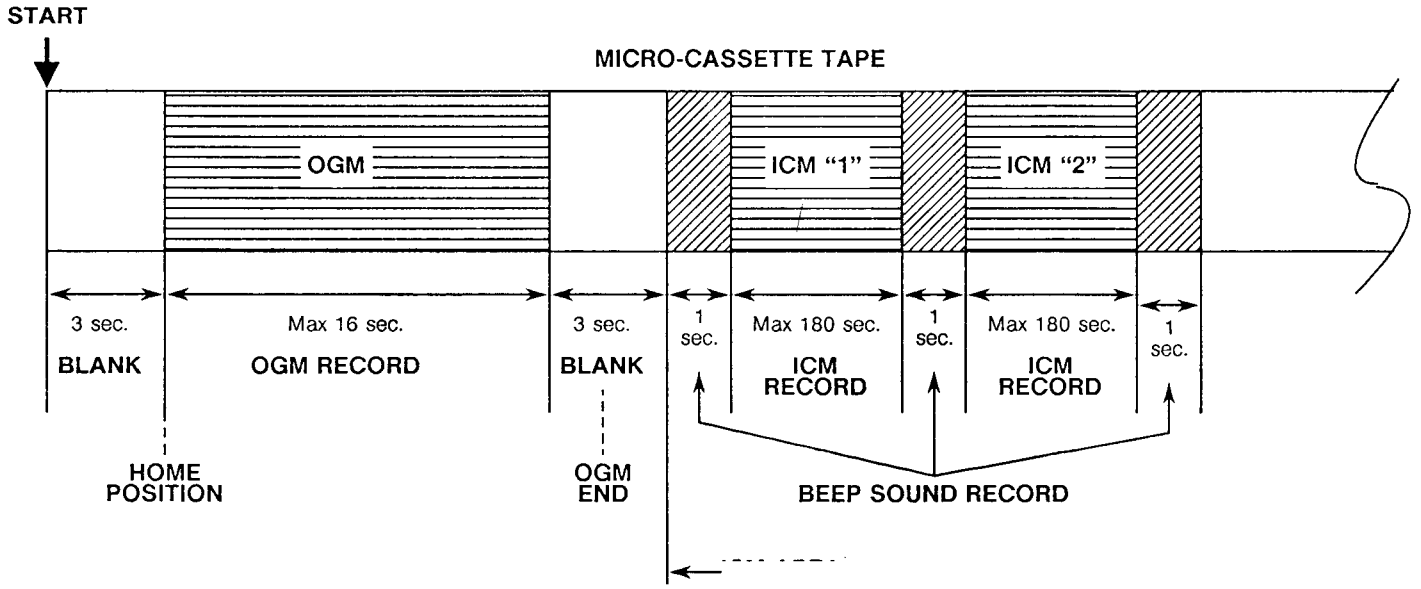
IC430 MSM6388GS (for OGM = Out-Going Message)

No.	Signal Name	Description of Function	Active	I / O
1	CA1	Cannel Select		I
2	CA2	Cannel Select		I
3	CA3	Cannel Select		I
4	REC / PLAY	Record / Playback Select (REC = High)		I
5	CSEL 1	Record ward Number Select		I
6	CSEL 2	Record ward Number Select		I
7	SAM 1	Sampling Frequency Select		I
8	SAM 2	Sampling Frequency Select		I
9	TEST	For LSI Test (LOW)		I
10	NC	Non Connection		
11	DAO	Internal 12 Bit DA Converter		O
12	AOUT	Analog Voice Output		O
13	FIN	Internal LPF Input		I
14	AMON	Connect LOUT when Rec, or Connect DA Converter Output when Playback. Connect Input (FIN) of Internal LPF.		O
15	LOUT	Output of Operational Amplifier with Input is LIN.		O
16	LIN	Inverted Input of Internal Operational Amplifier.		I
17	DV_{DD}	Power Source for Digital		
18	AV_{DD}	Power Source for Analog		
19	SG	Output of Reference Voltage for Analog Circuit (Signal Ground). For Internal		O
20	SGC	Output of Reference Voltage for Analog Circuit (Signal Ground), For External		O
21	MOUT	Output of Operational Amplifier with Input is MIN.		O
22	MIN	Inverted Input of Internal Operational Amplifier.		I
23	AGND	Ground for Analog		
24	DGND	Ground for Digital		
25	RSEL 1	Select Number of Serial Register		I
26	RSEL 2	Select Number of Serial Register		I
27	ST-SP	Start of Record or Playback, or End of Record or Playback. Or During Playback, Repeat Playback when HIGH Level hold.	HIGH Pulse	I
28	MCUM	Standalone / Micro Processor Type Select		I

No.	Signal Name	Description of Function	Active	I / O
29	TAS	Transfer Address Strobe. Connect TAS Terminal of Serial Register.		O
30	SAS	Serial Address Strobe. Connect SAS Terminal of Serial Register. Clock Terminal for Serial Address Writing		O
31	SAD	Serial Address Data. Connect SAD Terminal of Serial Register. Output of Head Address for Read / Write.		O
32	CS1	Chip Select. Connect CS Terminal of Serial Register.		O
33	CS2	Chip Select. Connect CS Terminal of Serial Register.		O
34	CS3	Chip Select. Connect CS Terminal of Serial Register.		O
35	CS4	Chip Select. Connect CS Terminal of Serial Register.		O
36	XT	Connect Oscillator		I
37	XT (Bar)	Connect Oscillator		O
38	WE	Write Enable. Connect WE Terminal of Serial Register. Select Read / Write Mode.		O
39	DV_{DD}	Power Source for Digital		
40	DIN	Data Input. Connect DIN Terminal of Serial Register. Output of Write Data.		O
41	DOUT	Data Output. Connect DOUT Terminal of Serial Register. Input of Read Data.		I
42	RWCK	Read / Write Clock. Connect RWCK Terminal of Serial Register. Clock Output Terminal for Data Read / Write to Serial Register.		O
43	2VCK	Output 1 / 2 Frequency Clock of Sampling Frequency.		O
44	MON	During Record or Playback, Output Low Level.		O

CIRCUIT DESCRIPTION (ANSWERING SYSTEM)

1. OGM & ICM RECORD



2. TELEPHONE ANSWERING SYSTEM MODE

Note : See circuit diagram or schematic diagram.

No.	TAS MODE	IC401 LC66512B					IC702 LA2805M														
		CONTROL OUTPUT					CONTROL OUTPUT				CONTROL SWITCHES										
		13 D0	14	15 D1	16	20 D2	24 D0	23 D1	22 D2	19 MUTE	SW 1	SW 2	SW 3	SW 4	SW 5	SW 6	SW 7	SW 8	SW 9	SW 10	SW 11
1	OGM REC (BASE-STATION)	L	-	H	H	L	L	H	L	L	0	0	1	0	0	0	0	0	0	1	0
2	OGM REC (HANDSET)	H	L	L	-	L	H	L	L	L	0	0	0	1	0	0	0	0	0	1	1
3	OGM PLAY (SPEAKER)	H	L	L	-	L	H	L	L	L	0	0	0	1	0	0	0	0	0	1	1
4	OGM PLAY (TEL LINE)	H	H	L	-	L	H	L	L	L	0	0	0	1	0	0	0	1	0	1	1
5	OGM SAVE (IC → TAPE)	H	H	L	-	H	H	L	H	L	0	0	0	1	1	0	1	1	1	1	1
6	OGM LOAD (TAPE → IC)	L	-	L	-	H	L	L	H	L	0	1	0	0	0	0	0	0	0	1	1
7	ICM REC	H	H	H	H	H	H	H	H	L	1	0	0	0	1	0	1	0	0	1	1
8	MEMO PLAY (BASE-STATION)	L	-	H	H	H	L	H	H	L	0	0	1	0	1	0	1	0	0	1	0
9	MEMO PLAY (HANDSET)	H	H	L	-	H	H	L	H	L	0	0	0	0	1	0	1	1	1	1	1
10	ICM & MEMO PLAY (SPEAKER)	L	-	L	-	H	L	L	H	L	0	1	0	0	0	0	0	0	0	1	1
11	ICM & MEMO PLAY (TEL LINE)	H	L	L	-	H	H	L	H	L	0	1	0	0	0	0	0	1	0	1	1
12	ICM & MEMO PLAY (BASE-STATION → HANDSET)	L	-	L	-	H	L	L	H	L	0	1	0	0	0	0	0	0	0	1	1
13	BEEP REC	H	H	L	-	H	H	L	H	L	0	0	0	1	1	0	1	1	1	1	1
14	ROOM MONITOR	L	-	H	L	L	L	H	L	L	0	0	1	0	0	0	0	1	0	1	0
		H : HIGH L : LOW - : LOW or HIGH					D0, D1 H : 3.5~4.2V M : 2 ~ 2.8V L : 0 ~ 0.8V				0 : SWITCH "OFF" 1 : SWITCH "ON"										

CIRCUIT DESCRIPTION

1. THE BASE STATION's DETECTOR CIRCUIT

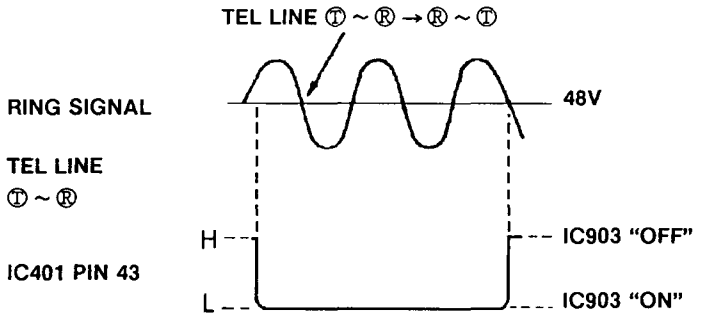
(1) The ringing tone detector circuit

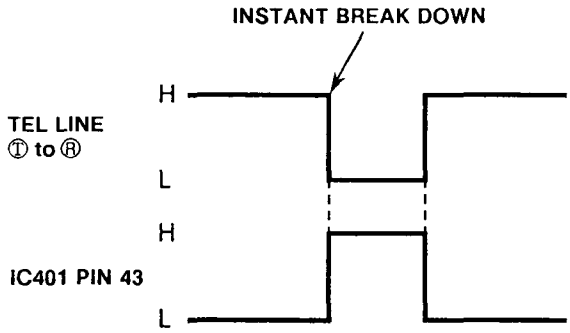
The ringing tone detect circuit detects the ring signal when the ringing tone is sent from the telephone line and informs the IC401 micro processor that the signal has arrived.

The ring signal coming in from the telephone line is transmitted from telephone line Ⓣ to Ⓡ. At this time IC903 switch to "ON" and "OFF".

Then IC903 and Q909 control the level of pin 43 in IC401. IC401 reads the time between "L" and "H" and thus determines that the ringing tone has been sent.

(The ringing tone is not detected if the voltage is less than 20 Vrms when received.)





(2) The CPC (Calling Parity Control) detection circuit

This circuit detects the disconnect pulse (CPC), which is emitted from the telephone line when a caller hangs up while CLA-1380AUS is in the AUTO answer mode, and inform pin 43 in IC401.

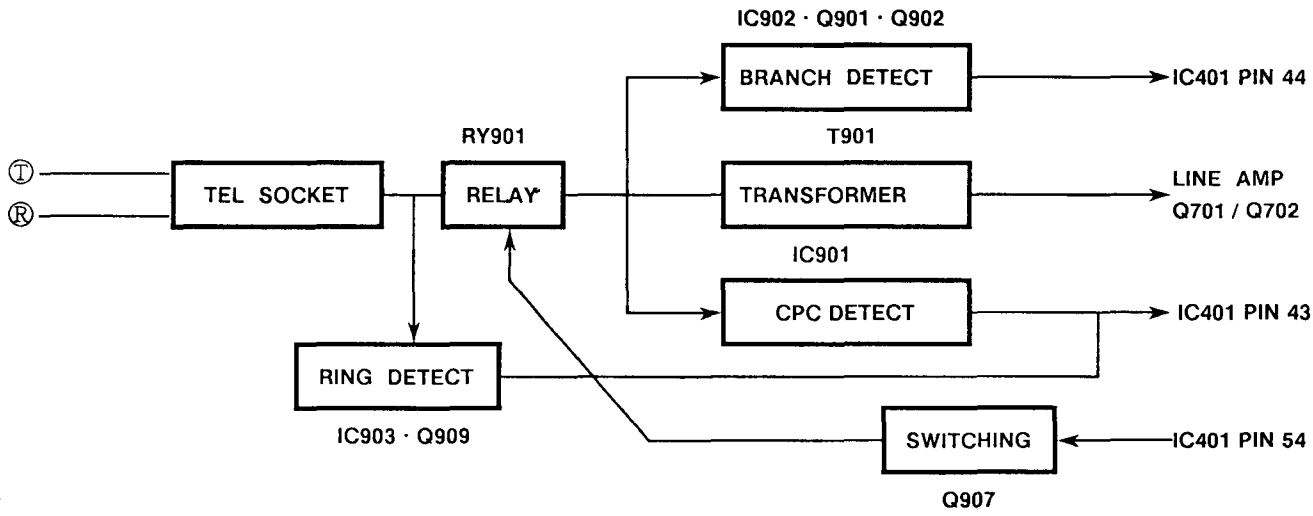
When the telephone line is closed (i, e. off-hook), the direct current from the telephone line flows from telephone line Ⓣ to Ⓡ. Then , IC901 switches to "ON" and pin 43 in IC401 get into "L".

If, at the time, the caller hangs up and the direct current in the telephone line is disconnected (through CPC), IC901 switches to "OFF". Pin 43 in IC401 then switches to "H".

- CPC detection conditions

Detection begins 2.5 sec. following off-hook.

The CPC disconnect pulse is detected when pin 43 in IC401 is in the "H" level for 8 msec. or more.



(3) The branch detection circuit

The branch detection circuit serves to detect the signal that is emitted when a telephone that is branch-connected goes off-hook while CIA-1380AUS is in the auto answer mode.

The circuit then informs IC401 and stops the auto answer mode.

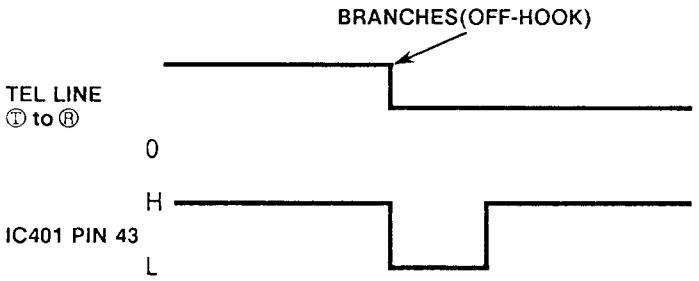
When the telephone line enters the closed stated (i. e. off-hook), the direct current from the telephone line flows through telephone line Ⓣ to Ⓡ.

At this time, Q901. Q902 drive IC902, then switched pin 44 in IC401 "L" and "H".

- Branch detection condition

Detection begins 2.5 sec. following off-hook.

"L" is detected if pin 44 in IC401 if it continues for 500 msec or more.



(4) The VOX (Voice activate recording) detection circuit

This circuit determines whether the signal sent from the telephone line while CIA-1380AUS is in the auto answer mode is voice, a busy signal, silence or a continuous sound, then stops auto answer mode.

While in the auto answer mode, the signal from the telephone line is input to pin 3 in IC702.

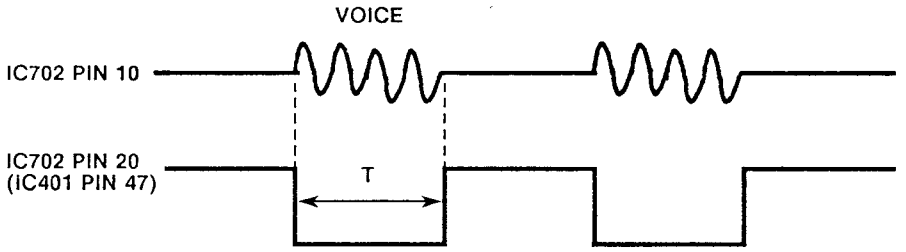
After being amplified by the Amplifier inside IC702, the signal is output from pin 8 in IC702 and sent to pin 10 in IC702.

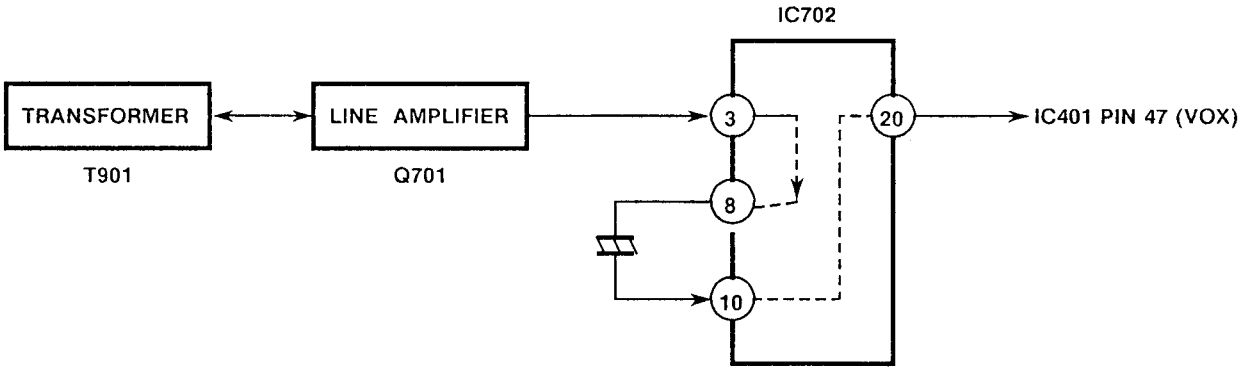
Then, the waveform shown in the figure below is output from pin 20 in IC702.

- VOX detection conditions

The signal is interpreted sa a voice if "T" does not occur in 8 seconds in the following range:

$15 \leq T \leq 80$ msec or $900 \leq T \leq 3000$msec.





(5) DTMF receive signal detection circuit.

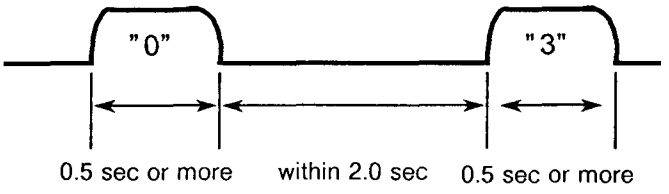
When retrieving recorded messages through a telephone line from another location, this circuit detects the frequency components of the DTMF signal sent as a control signal and informs IC401.

When the DTMF signal is sent through the telephone line from another location while CLA-1600 is in the auto answer mode, it is input to pin 2 in IC704.

When this happens, the level of pin 15 in IC704 changes from "L" to "H". Then, from pin 11 ~ pin 14 in IC704, the 4 bit signal that corresponds to the key (16 DTMF tone -pairs into a 4 bits code) is output.

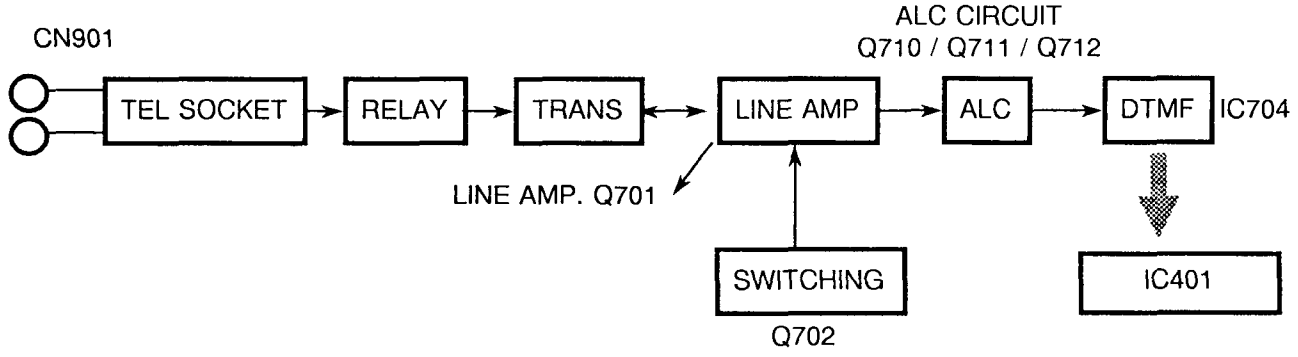
IC401 is activated in response to remote control signals sent from another location.

Example : 0 and 3



DTMF TONE PHASE IN 4 BIT CODE

KEY	LOW GROUP FREQUENCY	HIGH GROUP FREQUENCY	IC704 LC7385M			
			12	13	12	11
1	697	1209	L	L	L	H
2	697	1336	L	L	H	L
3	697	1477	L	L	H	H
4	770	1209	L	H	L	L
5	770	1336	L	H	L	H
6	770	1477	L	H	H	L
7	852	1209	L	H	H	H
8	852	1336	H	L	L	L
9	852	1477	H	L	L	H
0	941	1336	H	L	H	L
•	941	1209	H	L	H	H
#	941	1477	H	H	L	L



(6) Tape rotation detection

- Reel pulse detection condition (at Q803-C / IC401 pin 46)
  Playback : 500msec. max ON / OFF ("L" or "H").
  End of rewind : 10msec. minimum ON / OFF.

(7) Motor drive control signals

- The motor drive voltage is controlled by IC401 and IC801.

MOTOR CONTROL REFERENCE TABLE

	IC401		VOLTAGE (+) AND (-)TERMINAL OF THE MOTOR
	pin 52	pin 53	
PLAYBACK	L	H	+2.5V
F. FWD	L	L	+5.0V
REW	H	L	-5.0V
STOP	H	H	0V

TROUBLE SHOOTING GUIDE

a. The base station does not operate.

1. Is the AC adaptor connected to an AC 240V line ?
   Is the jack (DC 9V) connected to the base station ?
   - Yes ↓
2. is the voltage of pin (1) of ic904 9v or higher ?
   - No → Is the voltage of AC adaptor output 9V ? Check AC adaptor.
   - Yes ↓
3. Is the voltage of pin (3) of IC904 6.0V ?
   - No → Check IC904.
   - Yes ↓
4. Is the voltage of pin (56) of IC401 5.3V ?
   - No → Check D401.
   - Yes ↓
5. Is the level of pin (26) of IC401 "High" ?
   - No → Check IC402.
   - Yes ↓
6. Is the frequency of pin (25) of IC401 "4.15MHz" ?
   - No → Check the OSC. circuit include X401.
   - Yes ↓
7. Is the level of pin (64) of IC401 "HIGH" ?
   - No → Check D903, Q905 and Q401.

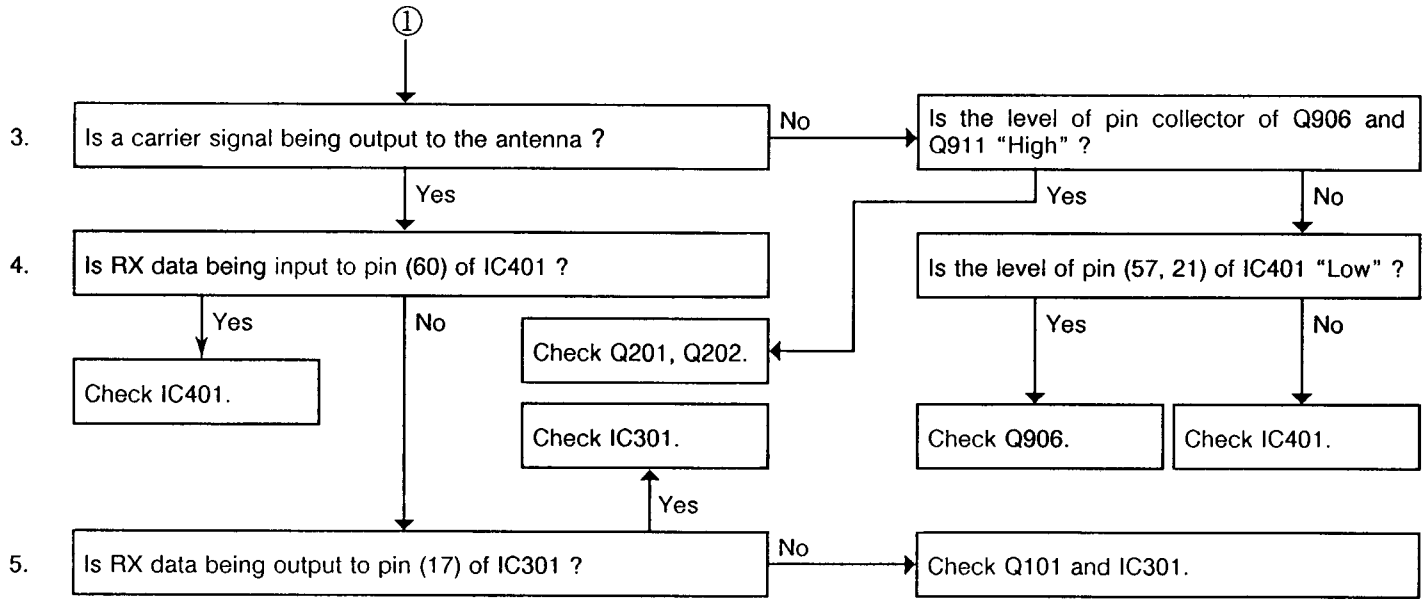
b. The handset does not operate.

1. Is the voltage of pin (39) of ic001 3.3v or higher ?
   - No → Check battery. Check connector (CN001).
   - Yes ↓
2. Is the level of the reset terminal of pin (21) of ic001 "high" ?
   - No → Check IC003.
   - Yes ↓
3. Is the frequency of pin (20) of IC401 4.15MHz ?
   - No → Check X001 and IC001.

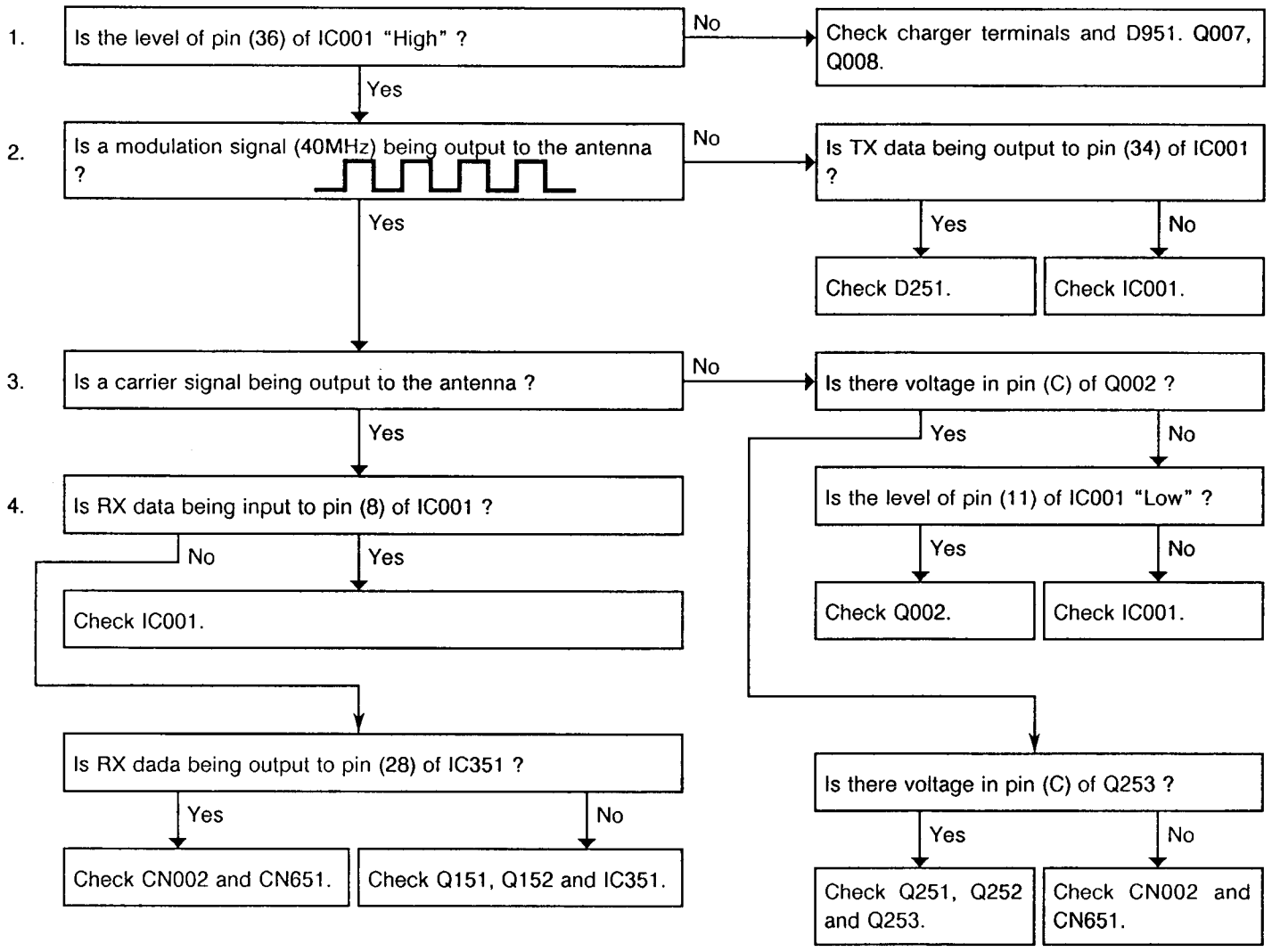
c. The security code cannot be registered. (Base station)
(Voice communications are not possible by pushing the TALK button. The unit does not link.)

1. Is the level of pin (42) of IC401 "Low" ?
   - No → Check charger terminals Q903 and Q904.
   - Yes ↓
2. Is a modulation signal (30MHz) being output to the antenna?

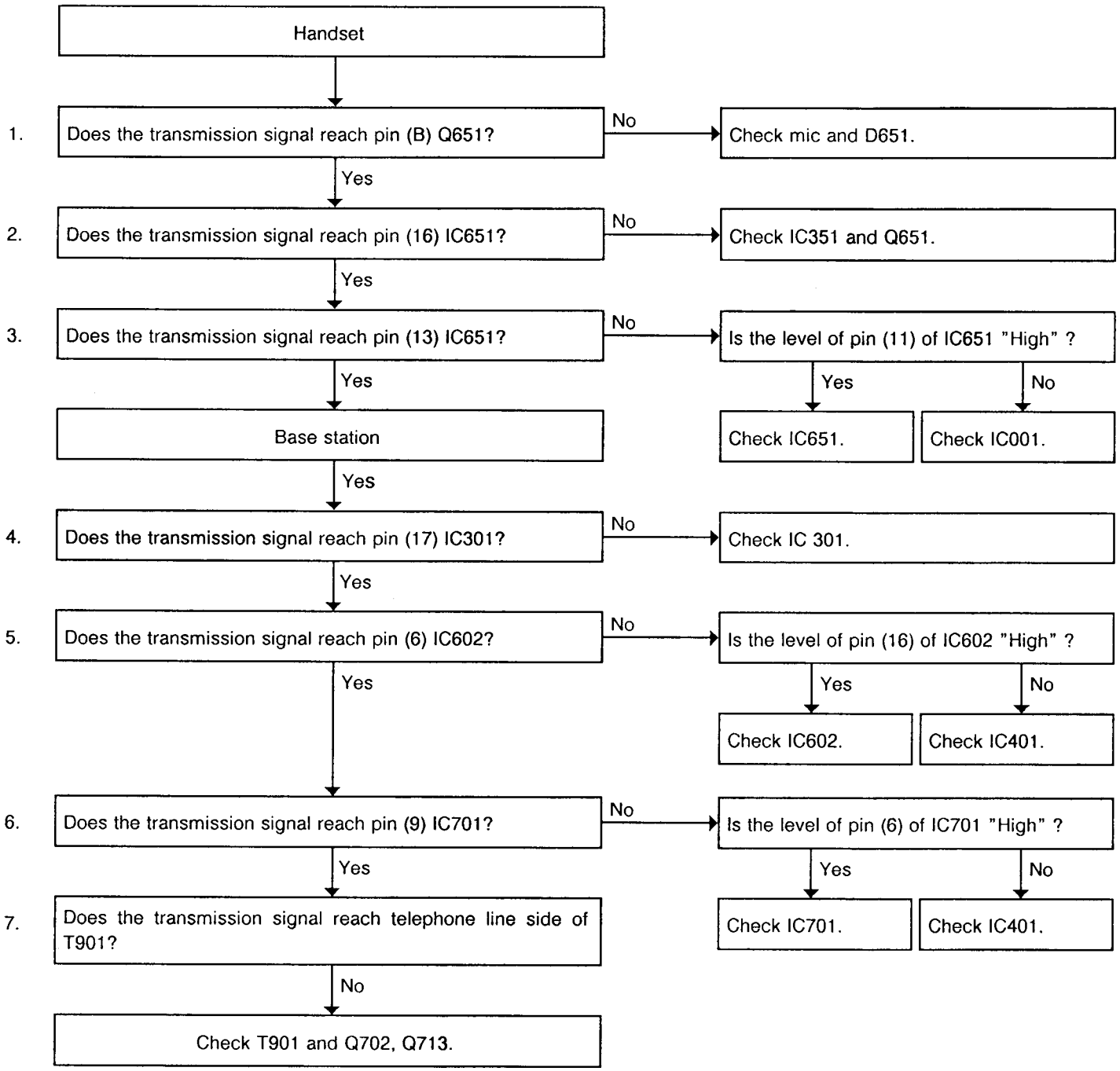
   - No → Is TX data being output to pin (15) of IC602.
     - Yes → Check D201.
     - No → Check IC401,Q402 and Q403.
   - Yes ↓ ①



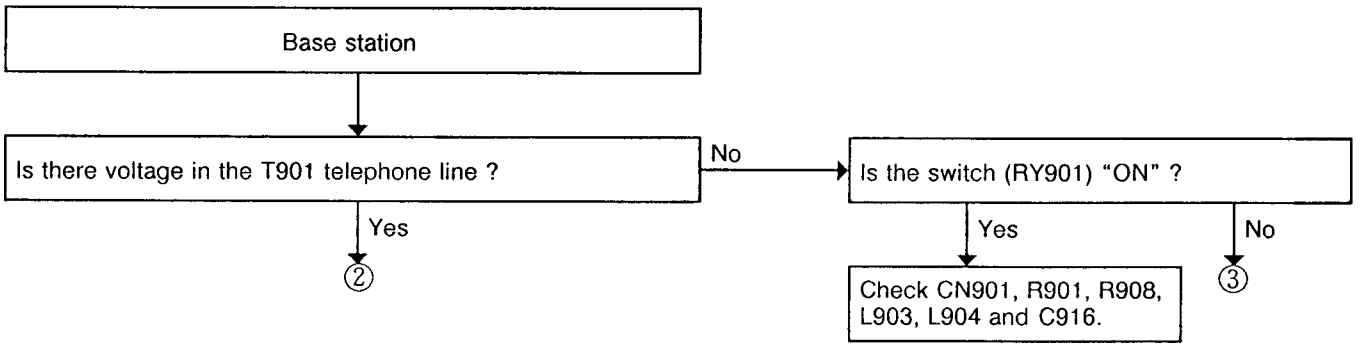
d. The security code cannot be registered. (Handset)
(Voice communications are not possible by pushing the TALK button. The unit does not link.)

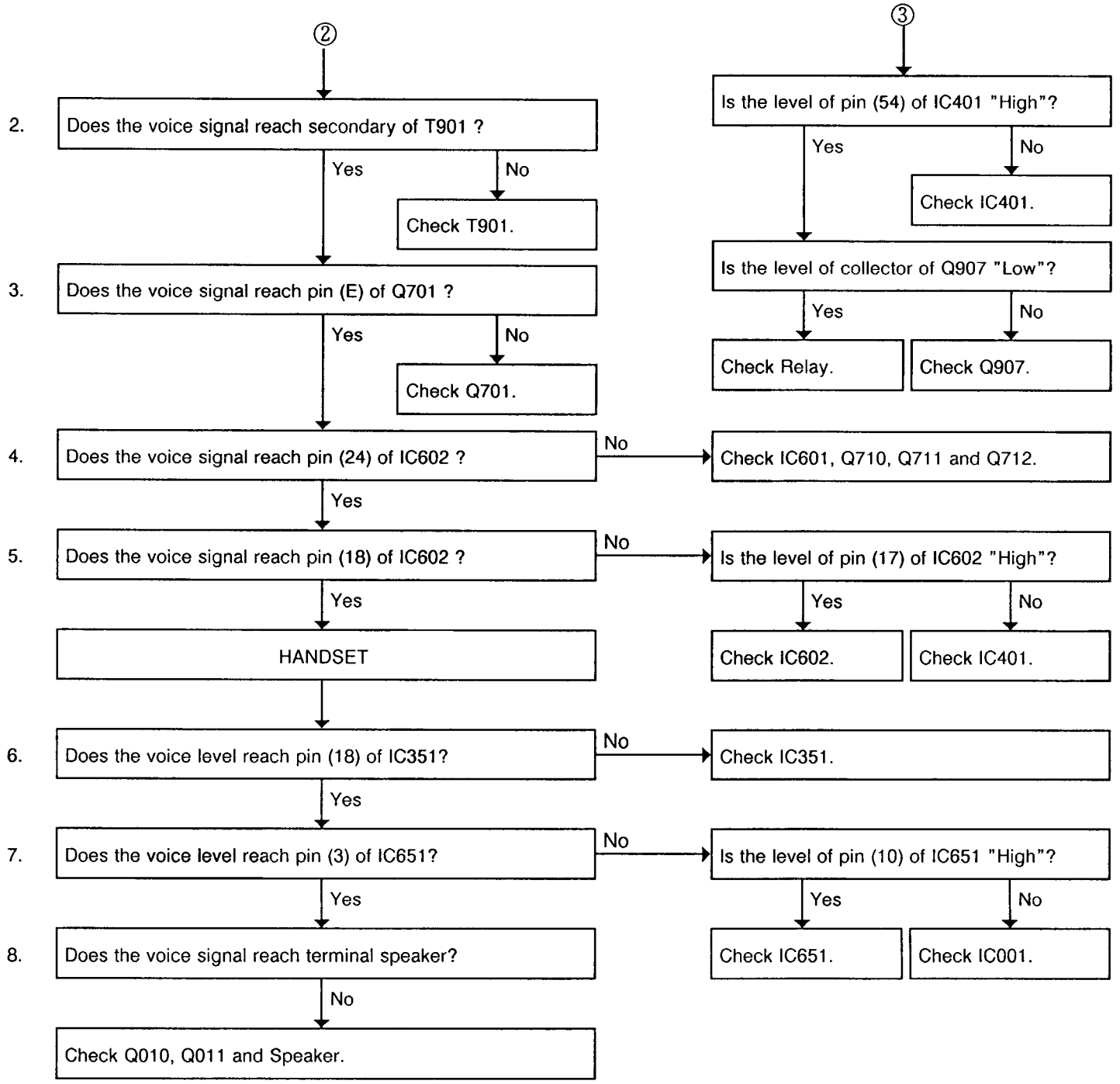


e. **Transmission signal**



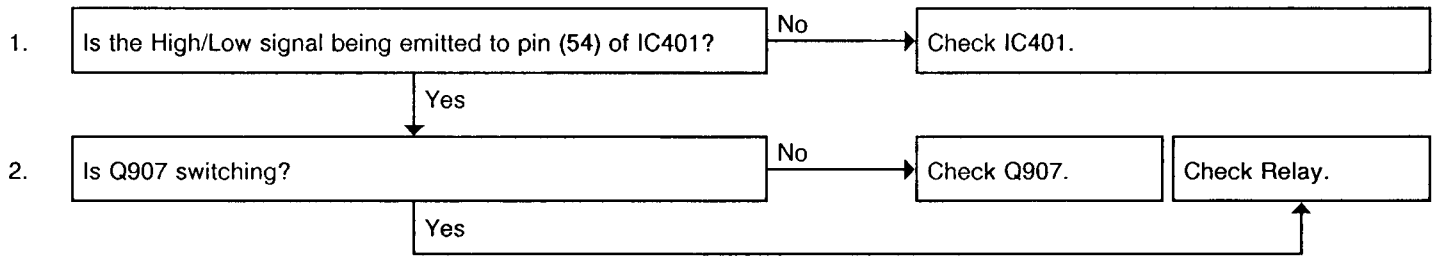
f. No voice signal is emitted during voice communications of handset speaker.



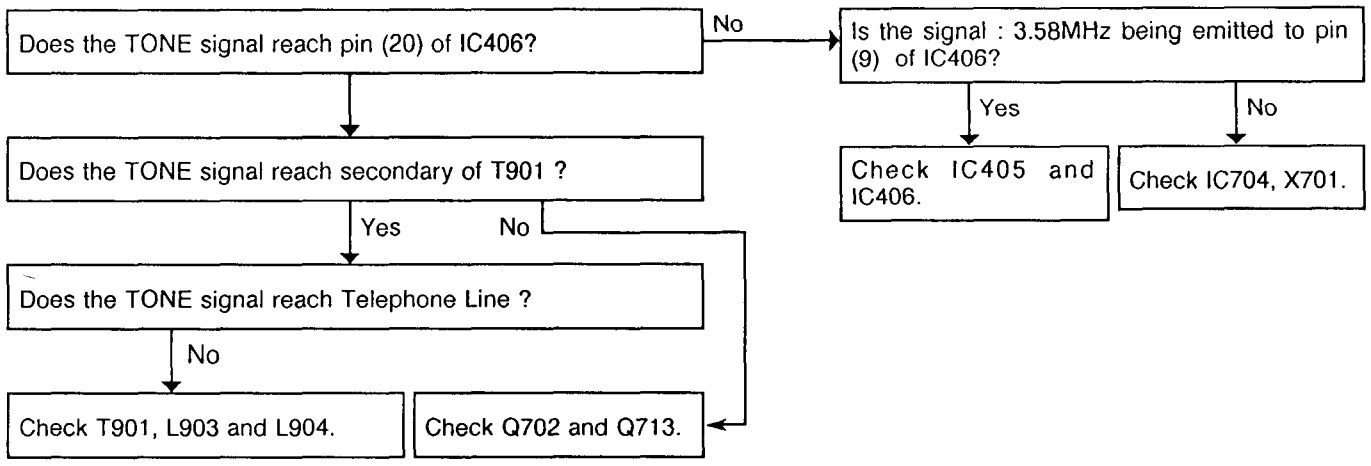


The number cannot be dialed.

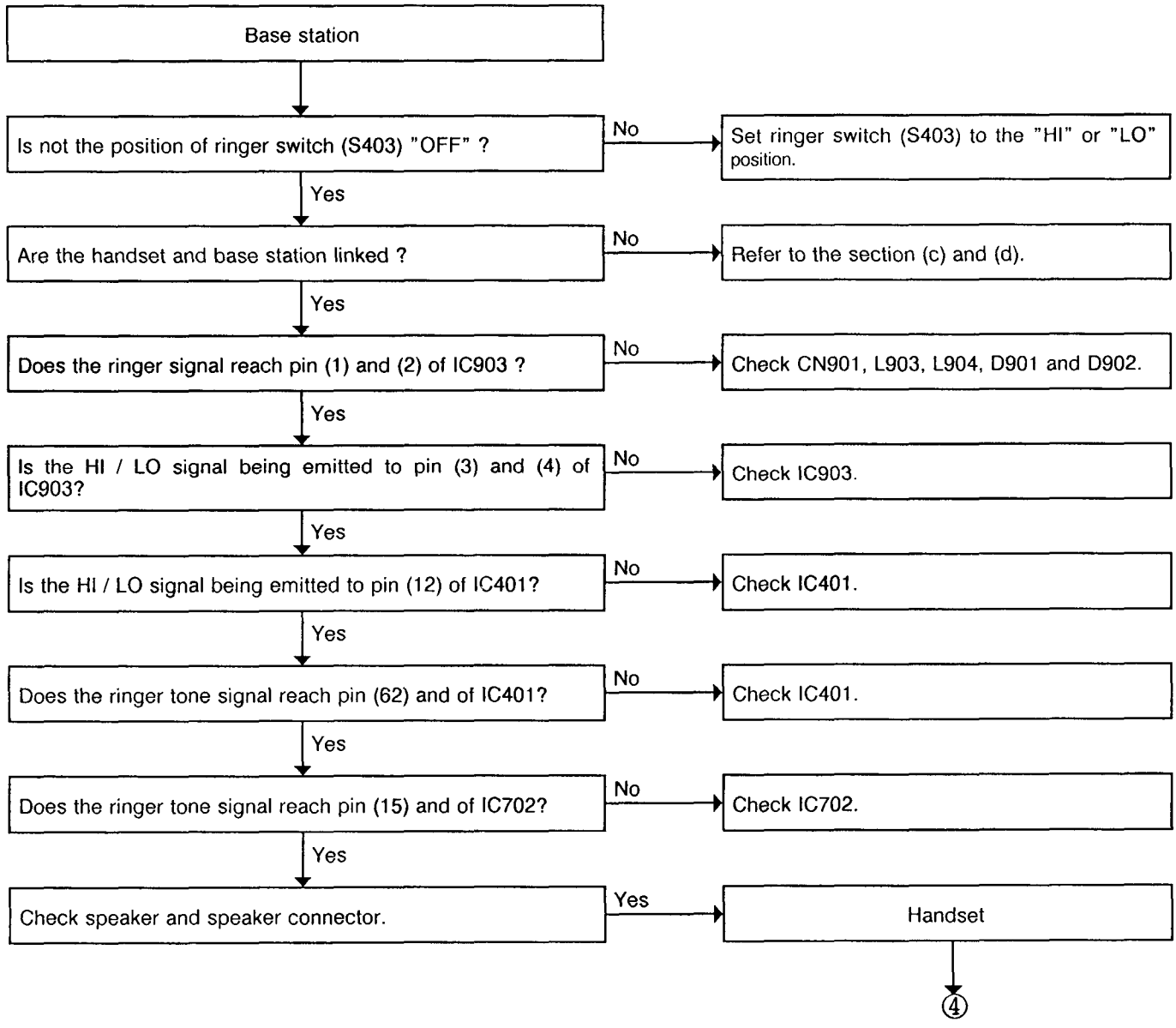
g. PULSE MODE

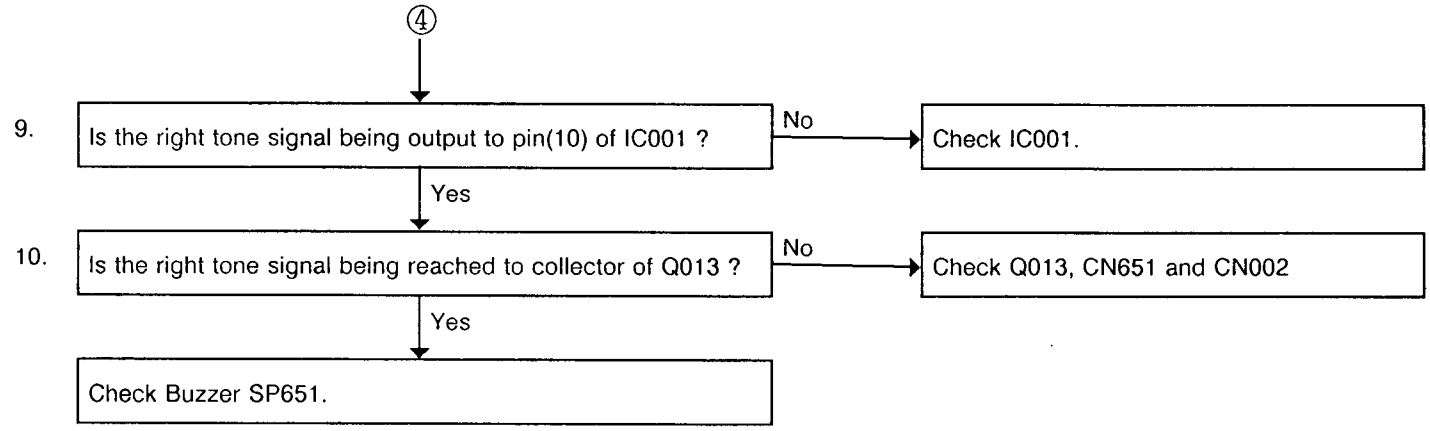


h. **TONE MODE**

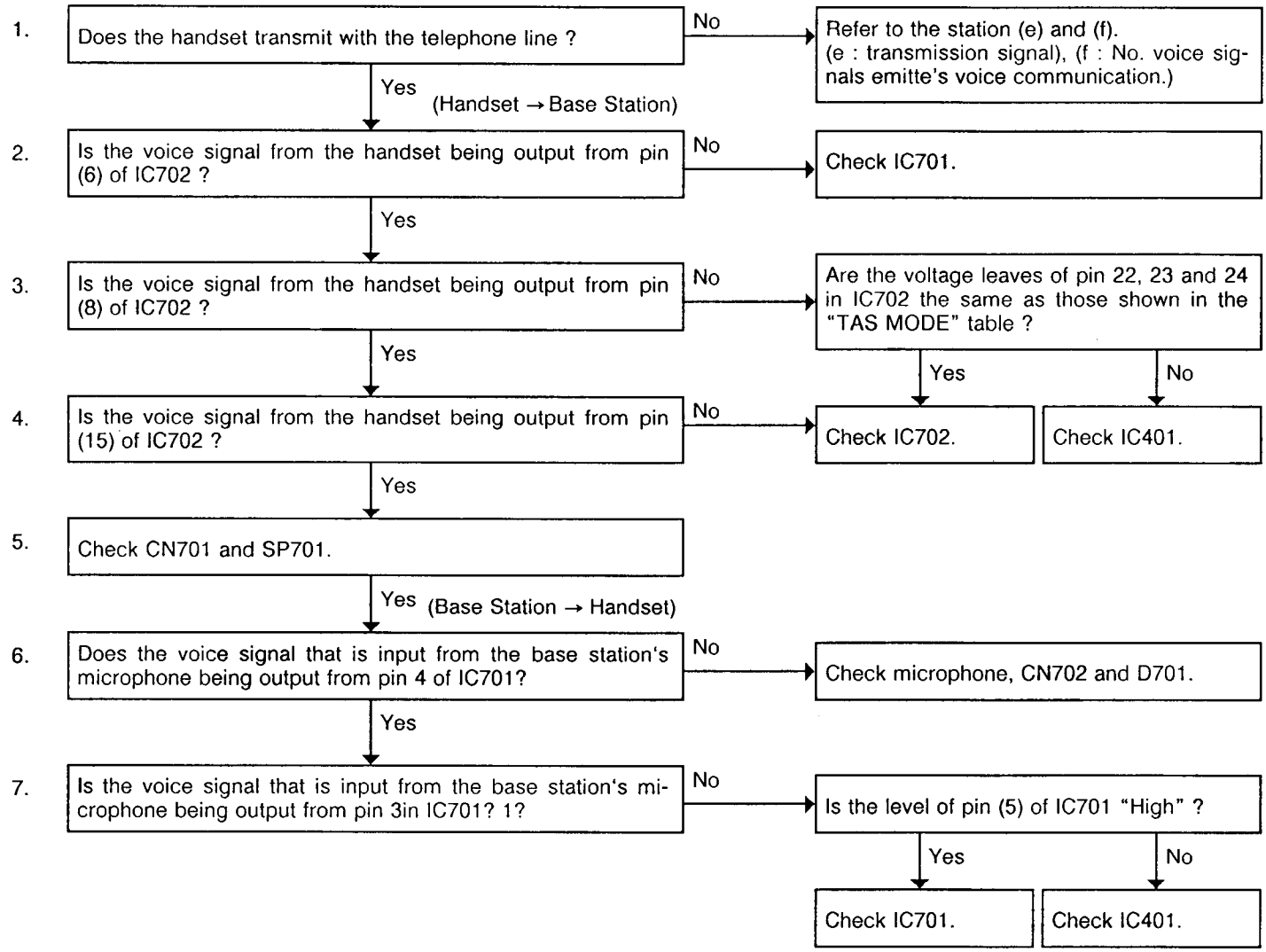


i. **The ringer does not ring.**



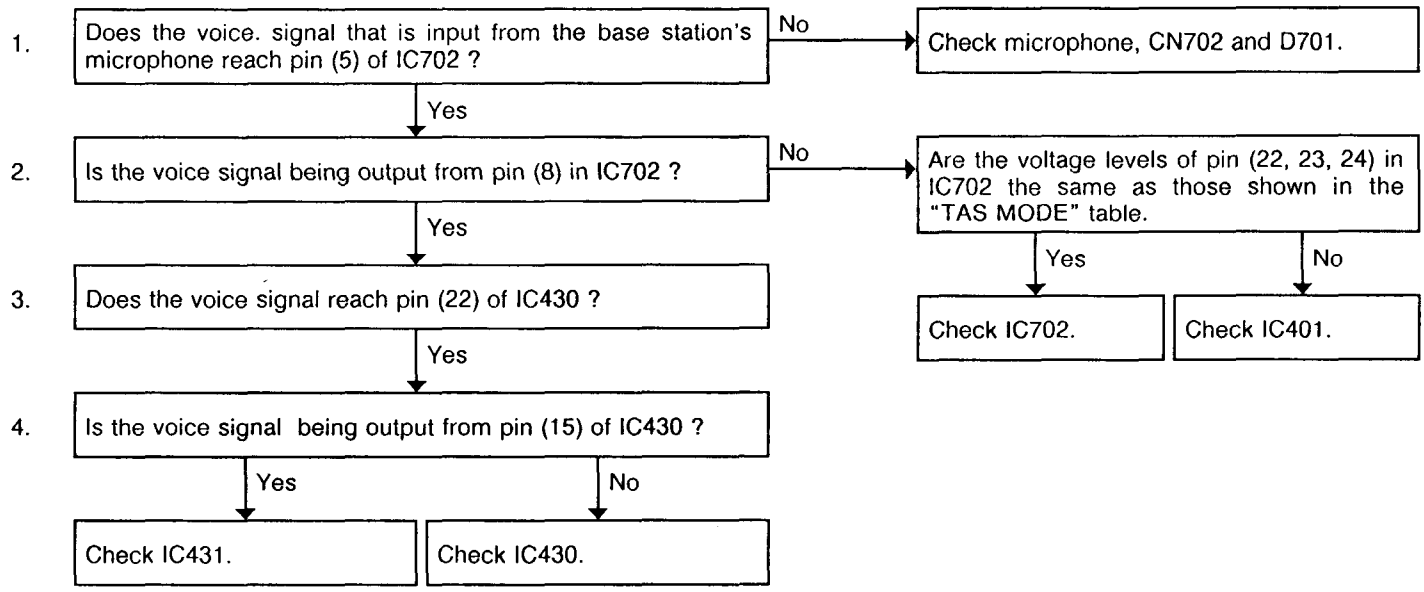


j. **The intercom does not operate.**

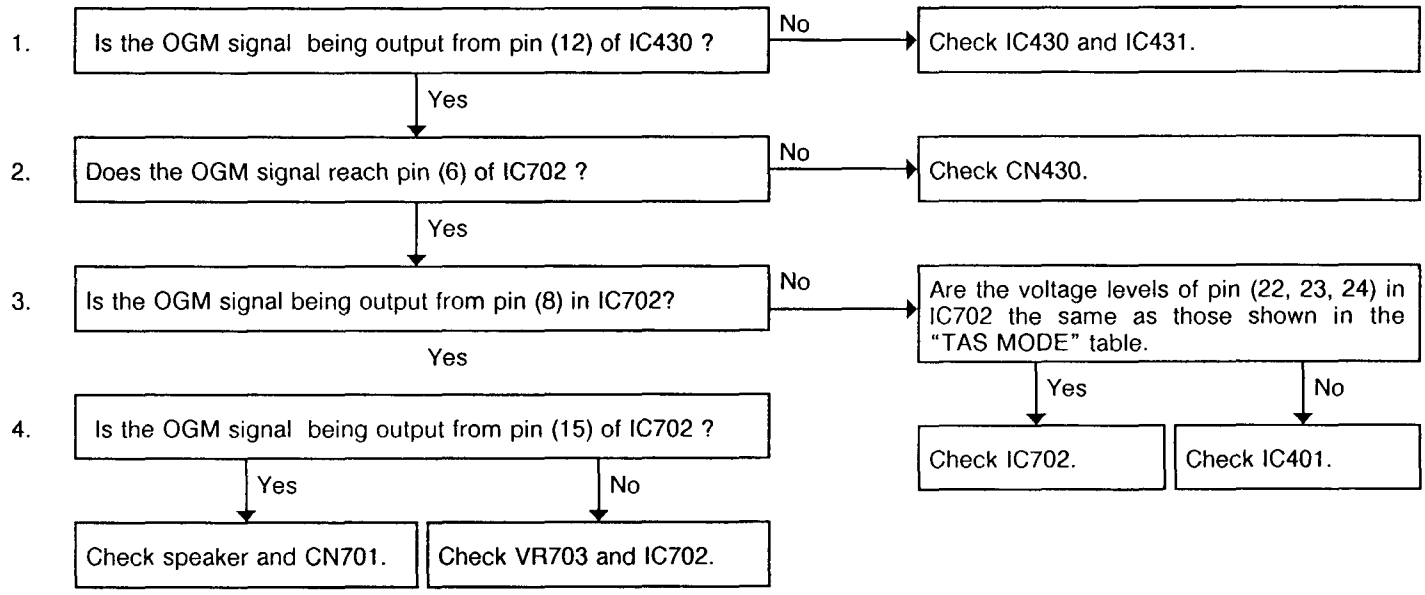

1.
Does the handset transmit with the telephone line ?
No
Refer to the station (e) and (f).
(e : transmission signal), (f : No. voice signals emitte's voice communication.)
Yes
(Handset → Base Station)
2.
Is the voice signal from the handset being output from pin (6) of IC702 ?
No
Check IC701.
Yes
3.
Is the voice signal from the handset being output from pin (8) of IC702 ?
No
Are the voltage leaves of pin 22, 23 and 24 in IC702 the same as those shown in the "TAS MODE" table ?
Yes
No
Yes
4.
Is the voice signal from the handset being output from pin (15) of IC702 ?
No
Check IC702.
Check IC401.
Yes
5.
Check CN701 and SP701.
Yes
(Base Station → Handset)
6.
Does the voice signal that is input from the base station's microphone being output from pin 4 of IC701?
No
Check microphone, CN702 and D701.
Yes
7.
Is the voice signal that is input from the base station's microphone being output from pin 3in IC701? 1?
No
Is the level of pin (5) of IC701 "High" ?
Yes
No
Check IC701.
Check IC401.

TROUBLE SHOOTING GUIDE

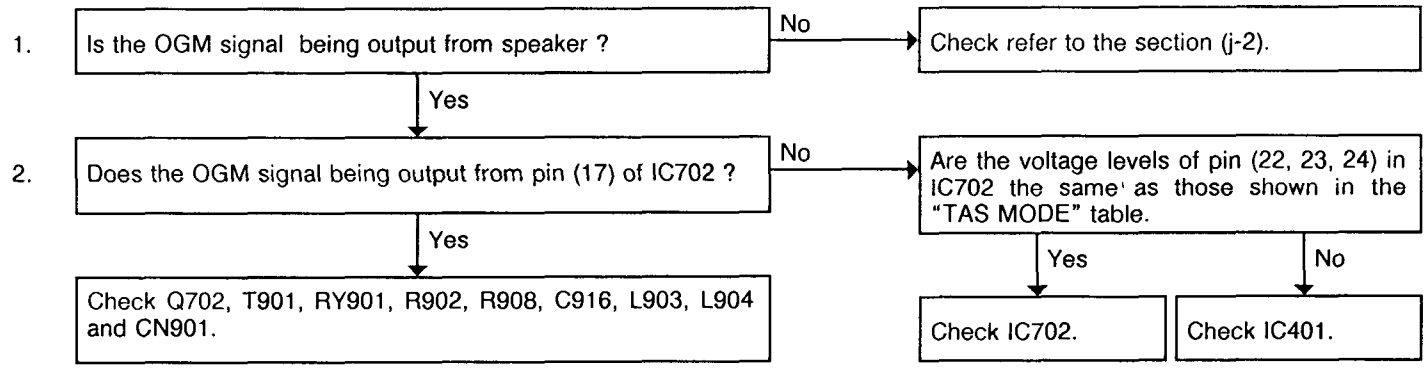
j-1 The OGM (outgoing message) recording does not operate.


1.
Does the voice. signal that is input from the base station's microphone reach pin (5) of IC702 ?
No
Check microphone, CN702 and D701.
Yes
2.
Is the voice signal being output from pin (8) in IC702 ?
No
Are the voltage levels of pin (22, 23, 24) in IC702 the same as those shown in the "TAS MODE" table.
Yes
Yes
No
3.
Does the voice signal reach pin (22) of IC430 ?
Check IC702.
Check IC401.
Yes
4.
Is the voice signal being output from pin (15) of IC430 ?
Yes
No
Check IC431.
Check IC430.

j-2 The OGM signal does not emanate from the speaker.

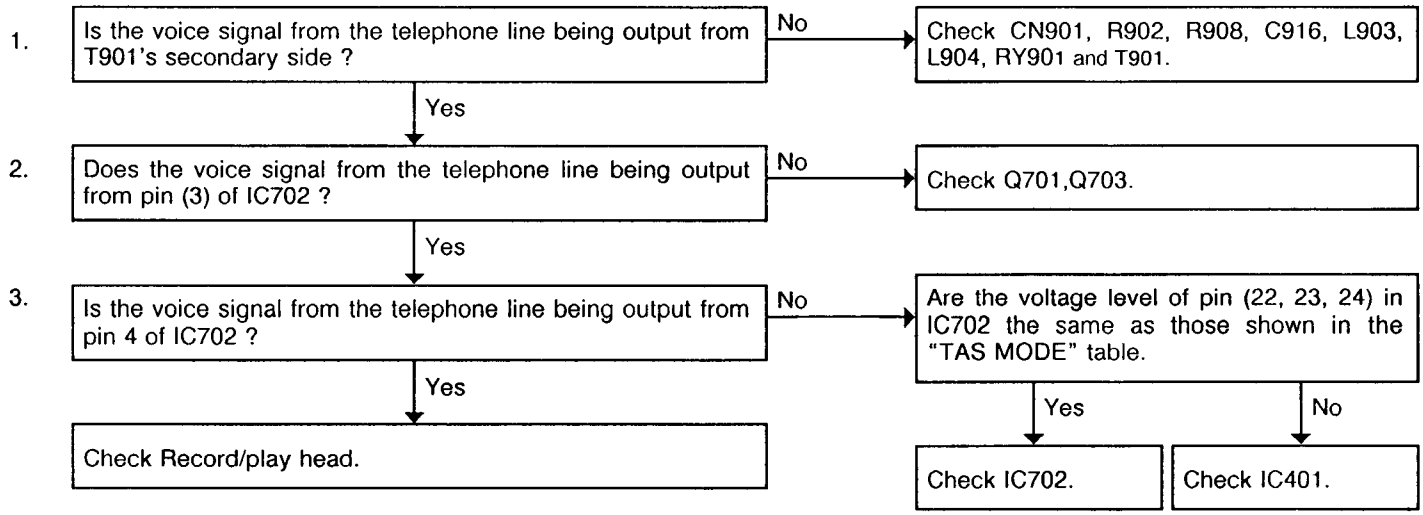


j-3 The OGM signal is not output to the telephone line.

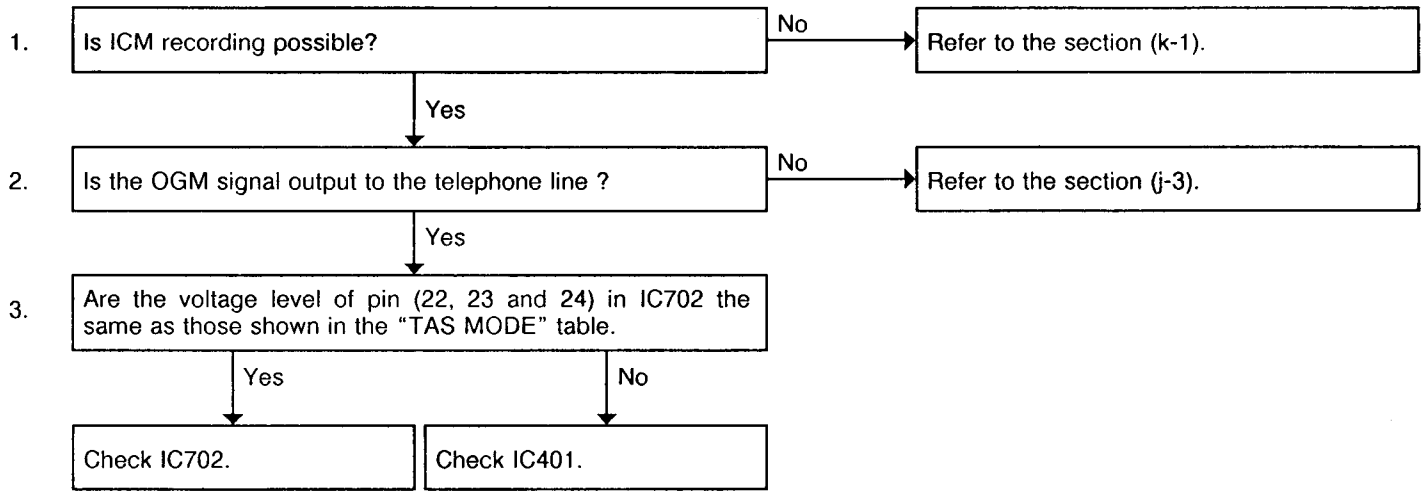

1.
Is the OGM signal being output from speaker ?
No
Check refer to the section (j-2).
Yes
2.
Does the OGM signal being output from pin (17) of IC702 ?
No
Are the voltage levels of pin (22, 23, 24) in IC702 the same as those shown in the "TAS MODE" table.
Yes
Yes
No
Check Q702, T901, RY901, R902, R908, C916, L903, L904 and CN901.
Check IC702.
Check IC401.

TROUBLE SHOOTING GUIDE

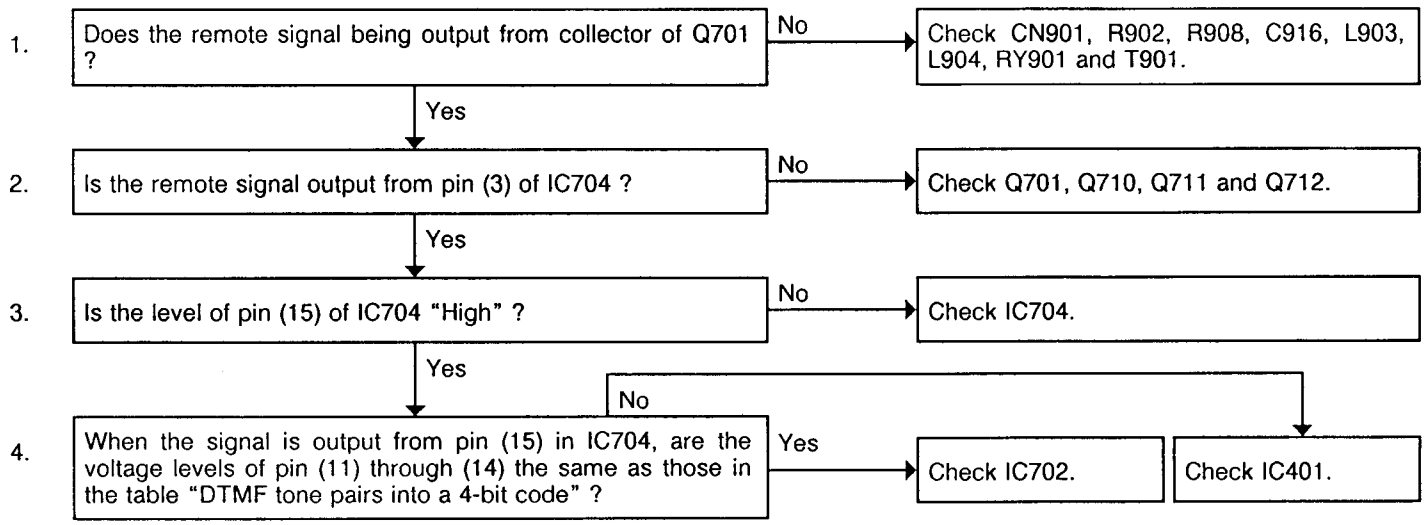
k-1 The ICM (incoming message) recording does not operate.


1.
Is the voice signal from the telephone line being output from T901's secondary side ?
No
Check CN901, R902, R908, C916, L903, L904, RY901 and T901.
Yes
2.
Does the voice signal from the telephone line being output from pin (3) of IC702 ?
No
Check Q701,Q703.
Yes
3.
Is the voice signal from the telephone line being output from pin 4 of IC702 ?
No
Are the voltage level of pin (22, 23, 24) in IC702 the same as those shown in the "TAS MODE" table.
Yes
No
Yes
Check Record/play head.
Check IC702.
Check IC401.

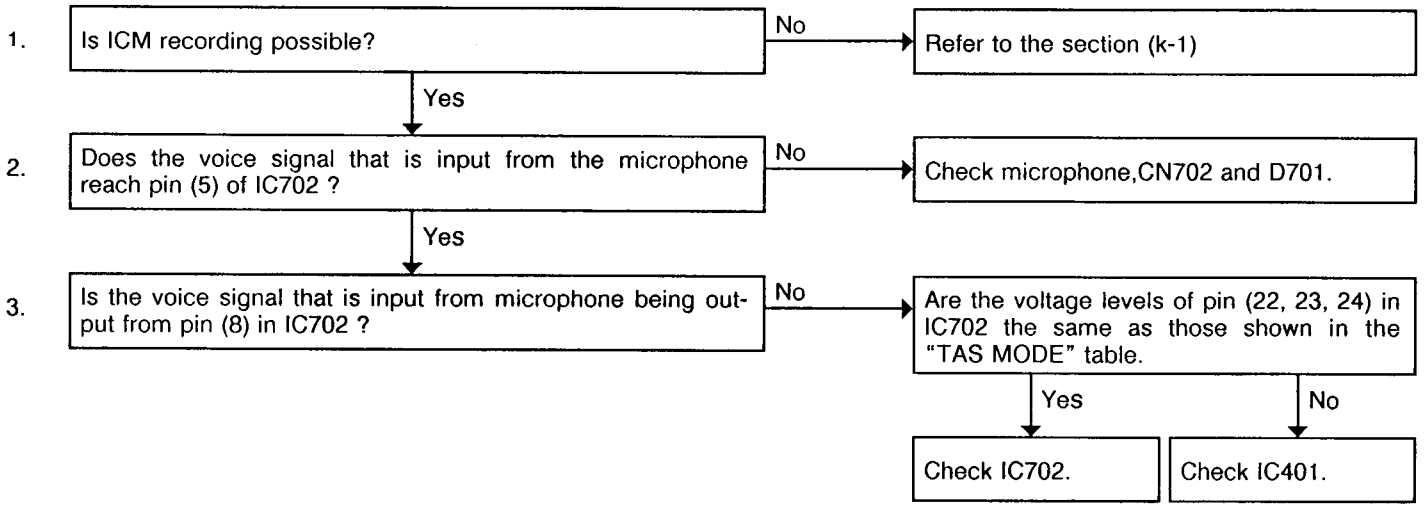
k-2 The ICM signal does not emanate from the speaker.



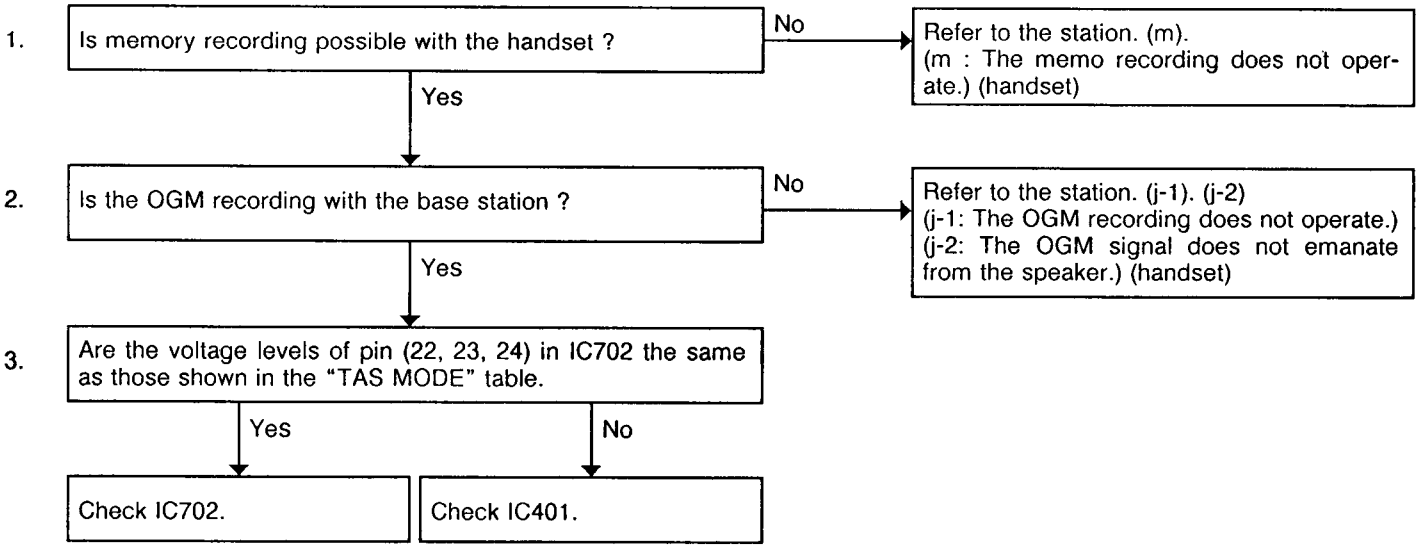
l The remote control signal does not emanate .


1.
Does the remote signal being output from collector of Q701 ?
No
Check CN901, R902, R908, C916, L903, L904, RY901 and T901.
Yes
2.
Is the remote signal output from pin (3) of IC704 ?
No
Check Q701, Q710, Q711 and Q712.
Yes
3.
Is the level of pin (15) of IC704 "High" ?
No
Check IC704.
Yes
No
4.
When the signal is output from pin (15) in IC704, are the voltage levels of pin (11) through (14) the same as those in the table "DTMF tone pairs into a 4-bit code" ?
Yes
Check IC702.
Check IC401.

m The MEMO recording does not operate.


1.
Is ICM recording possible?
No
Refer to the section (k-1)
Yes
2.
Does the voice signal that is input from the microphone reach pin (5) of IC702 ?
No
Check microphone,CN702 and D701.
Yes
3.
Is the voice signal that is input from microphone being output from pin (8) in IC702 ?
No
Are the voltage levels of pin (22, 23, 24) in IC702 the same as those shown in the "TAS MODE" table.
Yes
No
Check IC702.
Check IC401.

n The OGM recording is not possible with the handset.


1.
Is memory recording possible with the handset ?
No
Refer to the station. (m).
(m : The memo recording does not operate.) (handset)
Yes
2.
Is the OGM recording with the base station ?
No
Refer to the station. (j-1). (j-2)
(j-1: The OGM recording does not operate.)
(j-2: The OGM signal does not emanate from the speaker.) (handset)
Yes
3.
Are the voltage levels of pin (22, 23, 24) in IC702 the same as those shown in the "TAS MODE" table.
Yes
No
Check IC702.
Check IC401.

VOLTAGES OF IC & TRANSISTOR

Unit : Volt

[• Handset "TALK" Mode at 10-ch V_{DD} : 3.8V, Base station "TALK" and "PLAY" Mode at 10-ch]

IC001 LC66358B

Measuring Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
TALK MODE	0	0	0	0	0	0	0	3.0	3.7	0	0	3.7	0	3.4	0	0
Measuring Pin No.	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
TALK MODE	0.3	0.3	0.3	2.3	3.7	0	0	2.2	0.1	0	2.5	0	0	0.2	1.6	0
Measuring Pin No.	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
TALK MODE	3.7	0	3.7	0	3.7	3.7	3.8	0 / 3.7	0	0	0	3.7	3.7	3.7	3.7	0

IC003 RH5VL31

Measuring Pin No.	1	2	3
TALK MODE	3.8	3.8	0

IC301 MC13135

Measuring Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
TALK MODE	5.7	5.0	4.6	5.8	5.4	5.7	4.4	0	4.9	4.9	4.9	0.9	5.8	0.9	0.9	3.3
PLAY MODE	5.7	5.0	4.6	5.8	5.4	5.7	4.4	0	4.9	4.9	4.9	0.6	5.8	0.6	0.6	2.2
Measuring Pin No.	17	18	19	20	21	22	23	24								
TALK MODE	2.8	5.8	5.8	4.8	5.8	5.8	0	0								
PLAY MODE	2.8	5.8	5.8	4.8	5.8	5.8	0	0								

IC302 LA6358NM

Measuring Pin No.	1	2	3	4	5	6	7	8
TALK MODE	3.0	3.4	2.0	0	2.9	2.9	2.9	5.8
PLAY MODE	2.0	3.3	2.0	0	2.9	2.9	2.9	5.8

IC351 LA8609M

Measuring Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
TALK MODE	1.28	3.7	2.8	0	1.23	1.28	2.98	3.0	3.3	1.23	1.23	3.8	3.7	0	0.7	1.1
Measuring Pin No.	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
TALK MODE	1.1	1.0	1.2	1.2	0	3.4	1.2	3.5	0	1.3	3.0	3.0	2.0	2.1	2.1	1.2
Measuring Pin No.	33	34	35	36	37	38	39	40	41	42	43	44				
TALK MODE	2.1	2.1	2.1	3.7	3.2	3.7	3.7	3.7	3.0	2.9	1.3	1.3				

IC401 LC66512B

Measuring Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
TALK MODE	0	0	0	5.3	5.3	5.3	0	0	0	0	0	5.3	0	0	0	0
PLAY MODE	0	0	0	5.3	5.3	5.3	0	0	0	0	0	5.3	0	0	0	0
Measuring Pin No.	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
TALK MODE	0	0	5.2	0	0	0	0	2.5	2.6	5.2	5.5	0	5.3	0	4.5	0
PLAY MODE	0	5.2	0	5.2	5.8	0	0	2.5	2.6	5.2	5.6	0	5.2	0	4.4	0
Measuring Pin No.	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
TALK MODE	5.0	4.5	4.5	0	0	0	5.2	0	0	5.0	5.3	4.8	5.2	0	0	5.3
PLAY MODE	0	4.4	4.4	0	0	0	0	0	0	5.0	5.2	4.7	5.2	Flish	4.9	5.2
Measuring Pin No.	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64
TALK MODE	5.2	5.2	5.2	1.4	1.7	2.6	5.6	5.3	0	5.3	0	4.5	5.3	0	5.0	5.6
PLAY MODE	5.2	5.2	5.2	0	1.8	0	5.6	5.3	5.6	5.3	0	2.2	5.3	0	5.0	5.2

VOLTAGES OF IC & TRANSISTOR

Unit : Volt

IC402 MN1380R

Measuring Pin No.	1	2	3
TALK MODE	5.3	5.3	0
PLAY MODE	5.3	5.3	0

IC403 MC145162

Measuring Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
TALK MODE	0	0	0	0	2.3	0	2.4	2.4	2.4	2.5	0	4.9	0	2.4	2.5	0
PLAY MODE	0	0	0	0	2.3	0	2.4	2.4	2.4	1.25	0	4.9	0	2.4	5.0	4.1

IC405 LC74HC373M

Measuring Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
TALK MODE	0	0	0	0	0	0	0	5.3	0	0	0	0	5.3	5.3	0	0
PLAY MODE	0	0	0	0	0	0	0	5.2	0	0	0	0	5.2	5.2	0	0
Measuring Pin No.	17	18	19	20												
TALK MODE	0	6.0	6.0	6.0												
PLAY MODE	0	6.0	6.0	6.0												

IC406 LC7366NM

Measuring Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
TALK MODE	6.0	6.0	0	0	0	0	0	0	0	6.0	0	0	0	0	0	0
PLAY MODE	6.0	6.0	0	0	0	0	0	0	0	6.0	0	0	0	0	0	0
Measuring Pin No.	17	18	19	20												
TALK MODE	0	0	0	0												
PLAY MODE	0	0	0	0												

IC430 MSM6388GS

Measuring Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
TALK MODE	5.5	5.5	0	5.7	0	5.5	0	0	0	0	0	0	0	0	3.5	7.3
PLAY MODE	5.5	5.5	0	5.7	0	5.5	0	0	0	0	0	0	0	0	0	0
Measuring Pin No.	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
TALK MODE	5.5	5.5	0	0	2.5	3.4	0	0	0	0	0	0	5.5	5.5	5.5	5.5
PLAY MODE	5.5	5.5	0	0	3.4	3.4	0	0	0	0	0	0	5.5	5.5	5.5	5.5
Measuring Pin No.	33	34	35	36	37	38	39	40	41	42	43	44				
TALK MODE	5.5	5.5	5.5	0	0	5.5	5.5	5.5	0	5.5	0	5.5				
PLAY MODE	5.5	5.5	5.5	0	0	5.5	5.5	5.5	0	5.5	0	5.5				

IC431 MSM6587JS

Measuring Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
TALK MODE	5.5	5.5	5.5	5.5	0	5.5	5.5	5.5	5.5	0	5.5	5.5	5.5	0	5.5	5.5
PLAY MODE	5.5	5.5	5.5	5.5	0	5.5	5.5	5.5	5.5	0	5.5	5.5	5.5	0	5.5	5.5
Measuring Pin No.	17	18														
TALK MODE	0	0														
PLAY MODE	0	0														

IC451 MC145162

Measuring Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
TALK MODE	0	0	0	0	1.4	0	1.4	1.4	1.4	1.8	0	3.0	0	1.8	1.8	0

VOLTAGES OF IC & TRANSISTOR

Unit : Volt

IC601 MC14069UBF

Measuring Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
TALK MODE	0	4.9	2.8	2.8	2.8	2.8	0	4.9	0	0	5.2	4.9	0	4.9
PLAY MODE	5.2	0	2.5	2.3	2.5	2.5	0	2.2	2.5	2.5	2.5	2.5	2.5	4.5

IC602 LA8632

Measuring Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
TALK MODE	2.9	2.8	2.9	0.6	2.9	2.9	2.9	5.6	0	5.0	0	2.9	5.6	2.9	2.9	5.0
PLAYMODE	2.9	2.8	2.9	0.8	2.9	2.9	2.9	5.6	0	2.1	0	2.9	5.6	2.9	2.1	2.1

Measuring Pin No.	17	18	19	20	21	22	23	24
TALK MODE	5.6	3.1	2.9	3.1	0.6	2.9	2.9	2.9
PLAY MODE	5.6	2.9	2.9	2.9	0.6	2.9	2.9	2.9

IC603 LA6358NM

Measuring Pin No.	1	2	3	4	5	6	7	8
TALK MODE	2.9	2.9	2.8	0	2.9	2.9	2.9	5.7
PLAYMODE	2.9	2.9	2.8	0	2.9	2.9	2.9	5.7

IC651 LA8630M

Measuring Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
TALK MODE	1.7	0.6	1.7	1.7	1.7	1.7	0	1.7	3.4	3.4	3.7	1.7	1.7	1.7	0.6	1.7

IC681 LA6358NM

Measuring Pin No.	1	2	3	4	5	6	7	8
TALK MODE	1.7	1.7	1.7	0	1.7	1.7	1.7	3.4

IC701 LC4066BM

Measuring Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
TALK MODE	2.9	0	2.8	0	0	4.9	0	2.9	2.9	2.8	0	0	0	5.8
PLAY MODE	2.9	2.9	2.3	0	0	0	0	2.9	2.9→0	2.3	0	0	4.7	5.8

IC702 LA2805M

Measuring Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
TALK MODE	3.5	0	0	0	0	0.2	0.6	5.0	0	3.7	3.7	9.0	3.4	0	3.4	10.3
PLAYMODE	3.5	0	0	0	0	0	0.6	5.0	0	3.7	3.7	8.2	3.4	0	3.4	9.5

Measuring Pin No.	17	18	19	20	21	22	23	24
TALK MODE	3.7	3.4	2.6	0	0	0.1	0	0
PLAY MODE	3.7	3.4	0	5.0	0	3.7	0	0

IC704 LC7385M

Measuring Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
TALK MODE	3.0	3.0	3.0	3.0	0	0	2.7	2.8	0	0	5.2	5.2	5.2	5.2	0	0
PLAY MODE	3.0	3.0	3.0	3.0	0	0	2.7	2.7	0	0	5.2	5.2	5.2	5.2	0	0

Measuring Pin No.	17	18
TALK MODE	0	6.0
PLAY MODE	0	6.0

IC801 LA5550M

Measuring Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
TALK MODE	0	0	0	0	0	1.4	1.7	0	5.2	5.2	0	0	0	5.7	5.7	0
PLAYMODE	0	0	5.5	0	0	0	1.7	0	4.8	5.0	0	0	0	5.6	5.6	5.0

Measuring Pin No.	17	18	19	20
TALK MODE	0	0	0	0
PLAY MODE	0.4	1.2	0	3.0

VOLTAGES OF IC & TRANSISTOR

Unit : Volt

IC901 PC724V

Measuring Pin No.	1	2	3	4	5	6
TALK MODE	0	0	0	0	5.2	0
PLAY MODE	0	0	0	0	5.2	0

IC902 TLP521

Measuring Pin No.	1	2	3	4
TALK MODE	0	0	0	4.8
PLAY MODE	0	0	0	4.8

IC903 PC814

Measuring Pin No.	1	2	3	4
TALK MODE	0	0	0	6.0
PLAY MODE	0	0	0	6.4

IC904 L7806

Measuring Pin No.	1	2	3
TALK MODE	10.8	0	6.0
PLAY MODE	9.9	0	6.0

TRANSISTOR

Transistor No.	Q001			Q002			Q006			Q007			Q008		
Measuring Pin Name	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
TALK MODE	3.8	3.7	3.1	3.8	3.7	3.1	0	2.4	0	0	0	0	0	0	0.6

Transistor No.	Q010			Q011			Q012			Q013			Q014		
Measuring Pin Name	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
TALK MODE	0.5	1.5	1.1	2.7	3.4	3.3	0	0.2	0	0	3.7	0	3.7	1.7	3.7

Transistor No.	Q015			Q016			Q101			Q151			Q152		
Measuring Pin Name	E	C	B	E	C	B	E	C	B	S	D	G	E	C	B
TALK MODE	0	1.7	0	3.8	3.7	3.1	0.3	5.4	0	3.66	0.26	0	1.3	2.4	0.6

Transistor No.	Q153			Q201			Q202			Q251			Q252		
Measuring Pin Name	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
TALK MODE	3.8	3.7	3.1	0	5.2	0.6	2.3	5.5	2.5	0	3.2	0.7	0	3.5	0.4

Transistor No.	Q253			Q254			Q301			Q351		
Measuring Pin Name	E	C	B	E	C	B	E	C	B	E	C	B
TALK MODE	1.8	3.7	2.2	3.8	3.8	3.1	0	0	0	3.7	2.98	3.0

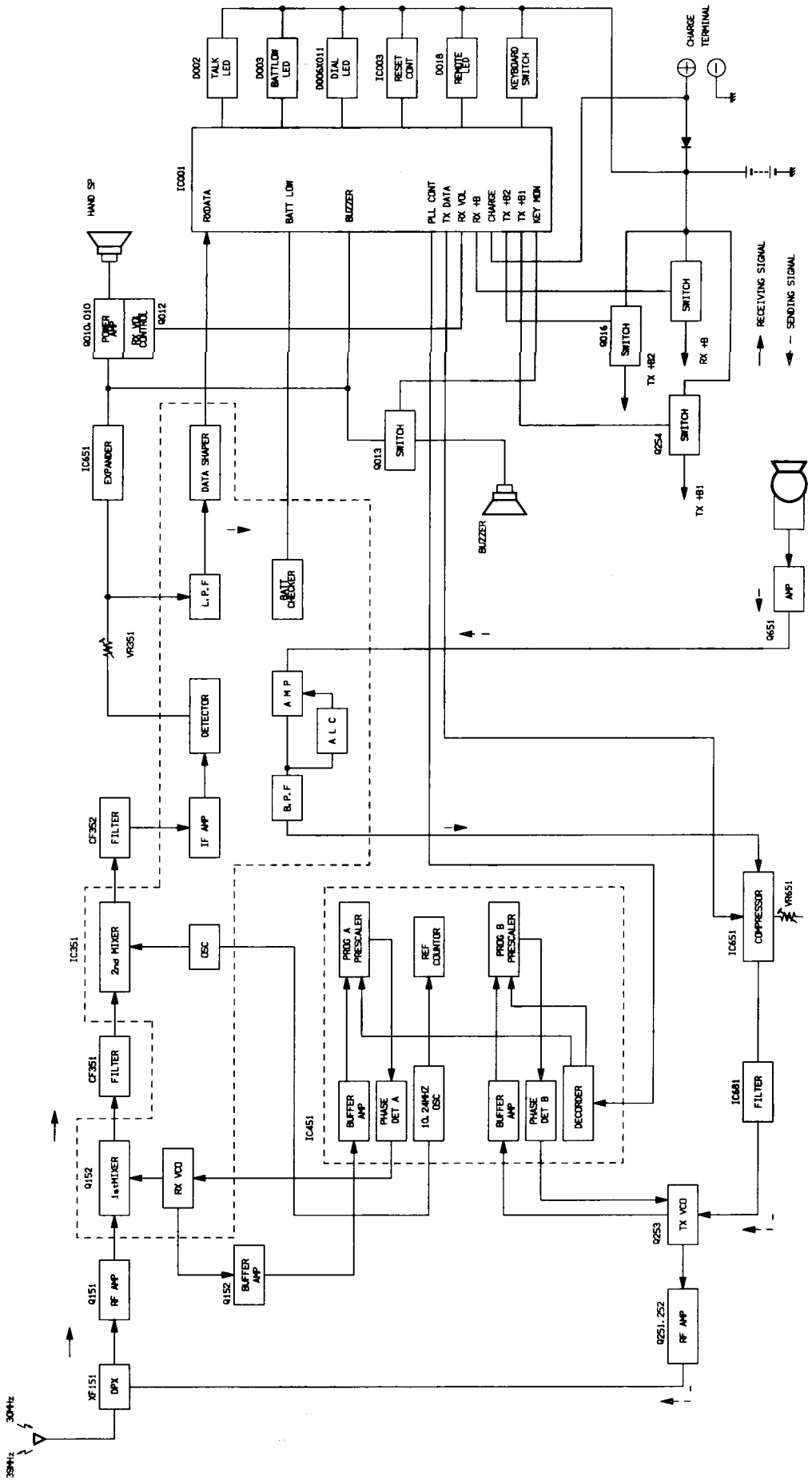
Transistor No.	Q401			Q402			Q403			Q451			Q651		
Measuring Pin Name	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
TALK MODE	5.3	5.5	4.9	5.3	2.8	5.3	0	2.8	0	0	0	0.6	0.1	2.2	0.7
PLAY MODE	5.3	5.3	4.7	5.3	2.8	5.3	0	2.8	0						

Transistor No.	Q701			Q702			Q703			Q704			Q705		
Measuring Pin Name	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
TALK MODE	3.1	7.5	3.6	1.9	6.8	2.5	0	3.1	0	6.0	0	6.0	0	0	0.6
PLAY MODE	2.8	6.9	3.3	1.7	6.3	2.3	0	2.8	0	6.0	0	6.0	0	0	0.6

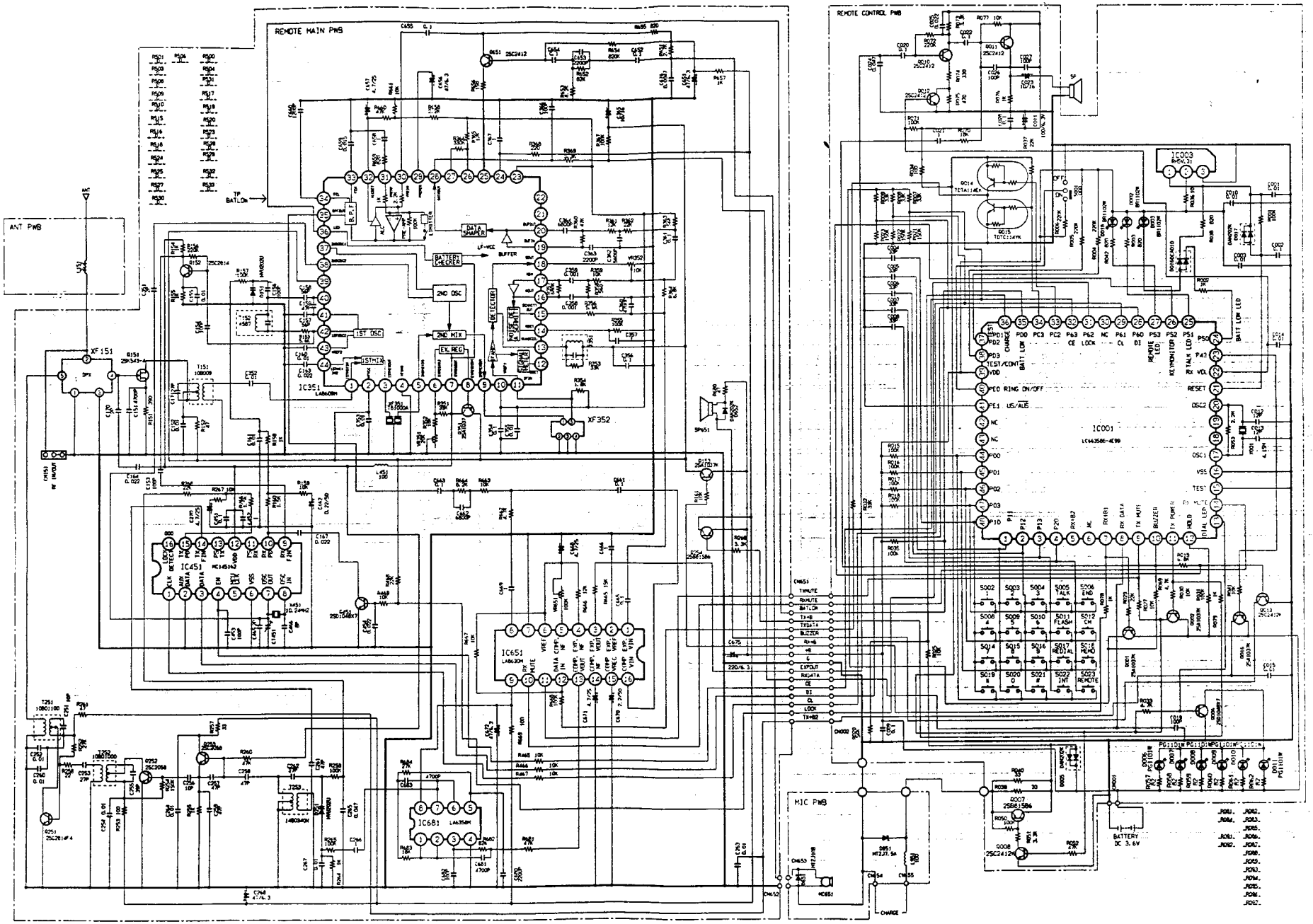
Transistor No.	Q707			Q708			Q709			Q710			Q711		
Measuring Pin Name	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
TALK MODE	0	0	0.1	0	0	0.6	0	0	0	0	0	0	0	2.6	0.6
PLAY MODE	0	0	0.1	0	0	0.6	0	0	0	0	0	0	0	2.5	0.6

Transistor No.	Q712			Q713			Q714			Q801			Q802		
Measuring Pin Name	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
TALK MODE	6.7	0	6.7	1.0	2.4	1.6	0.5	3.3	1.1	5.7	0	5.2	5.7	0	5.2
PLAY MODE	6.2	0	6.2	0.9	2.2	1.5	0.4	3.0	1.0	5.6	5.5	4.8	5.6	3.0	5.0

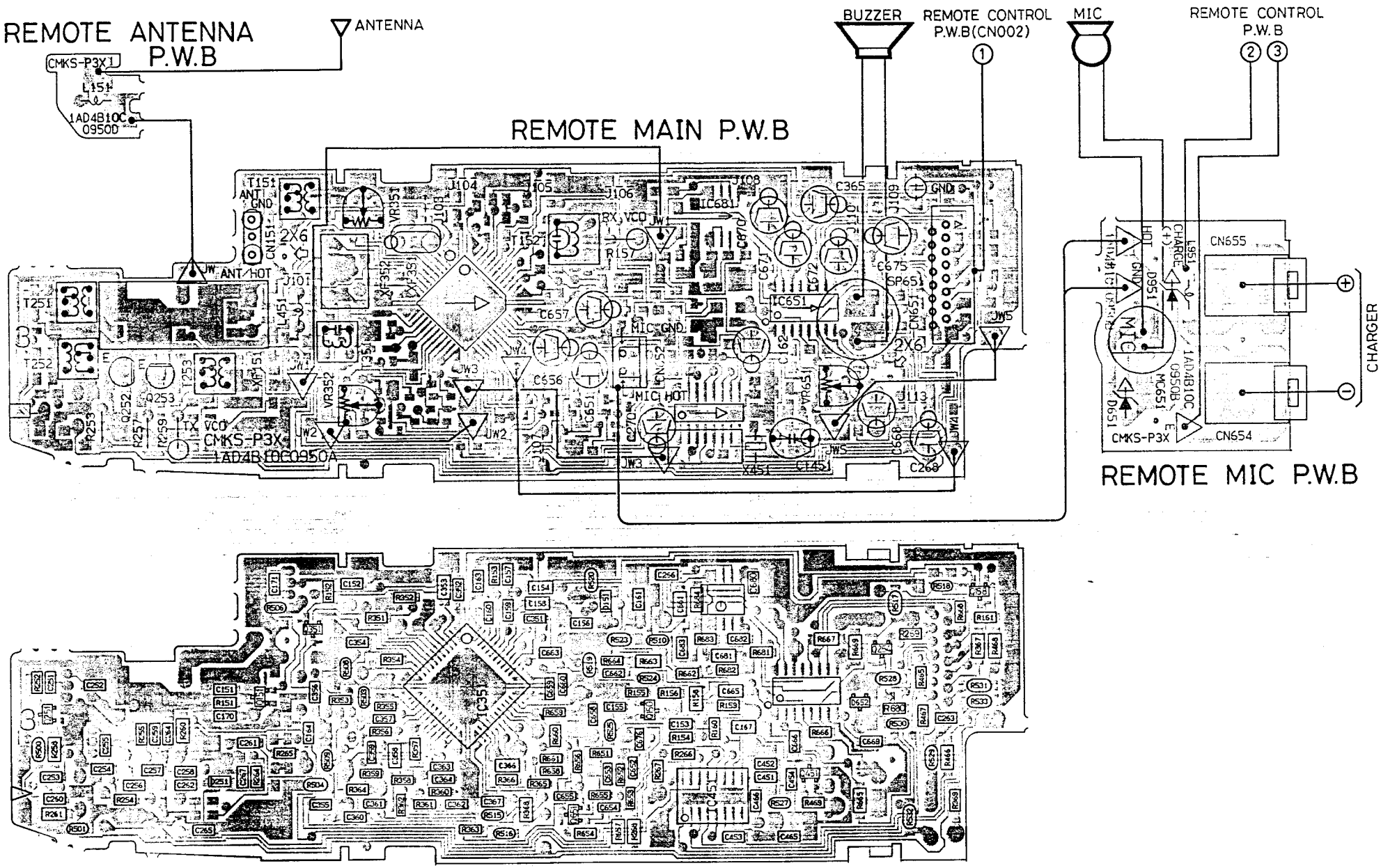
BLOCK DIAGRAM (HANDSET)



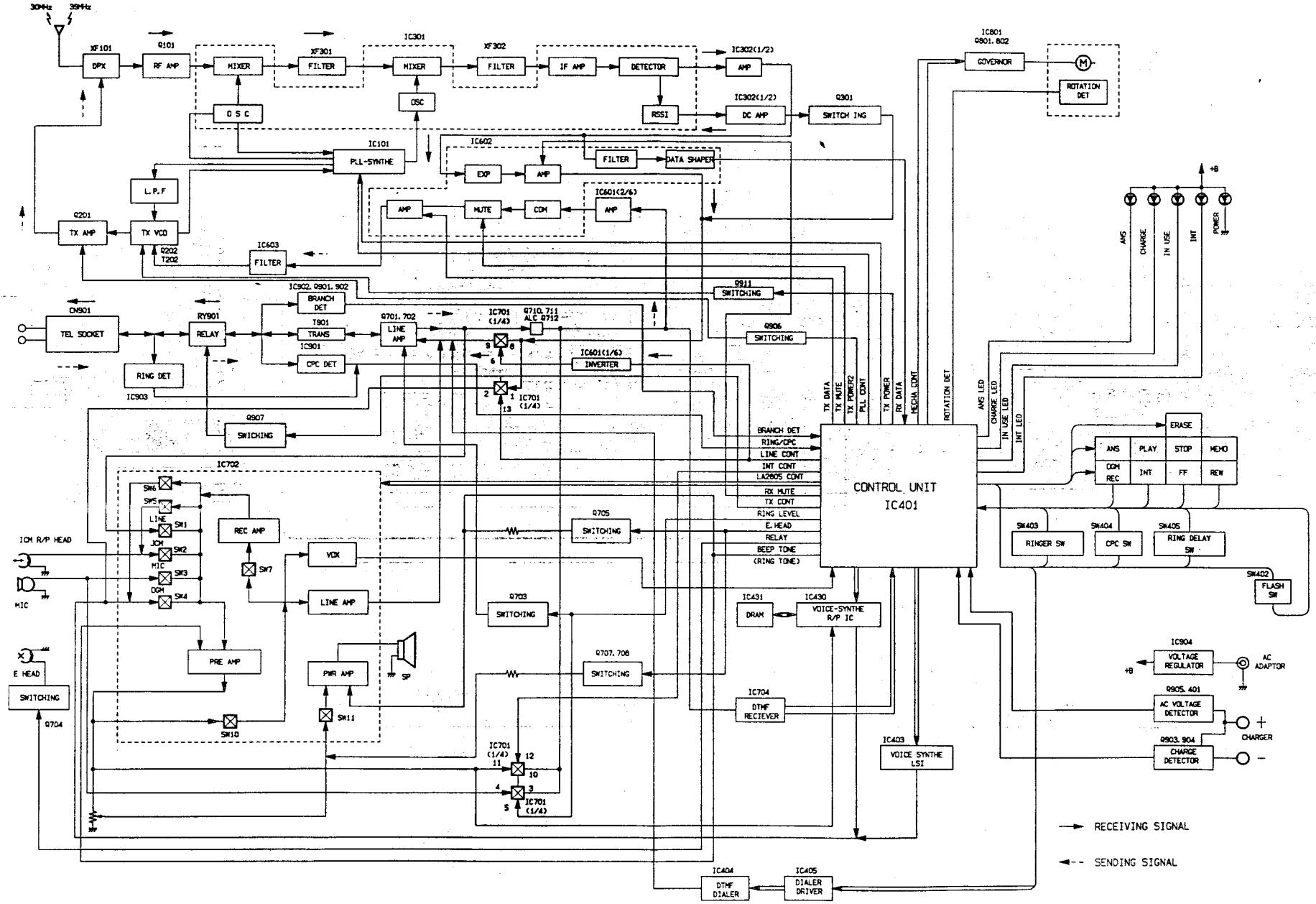
SCHEMATIC DIAGRAM (HANDSET)



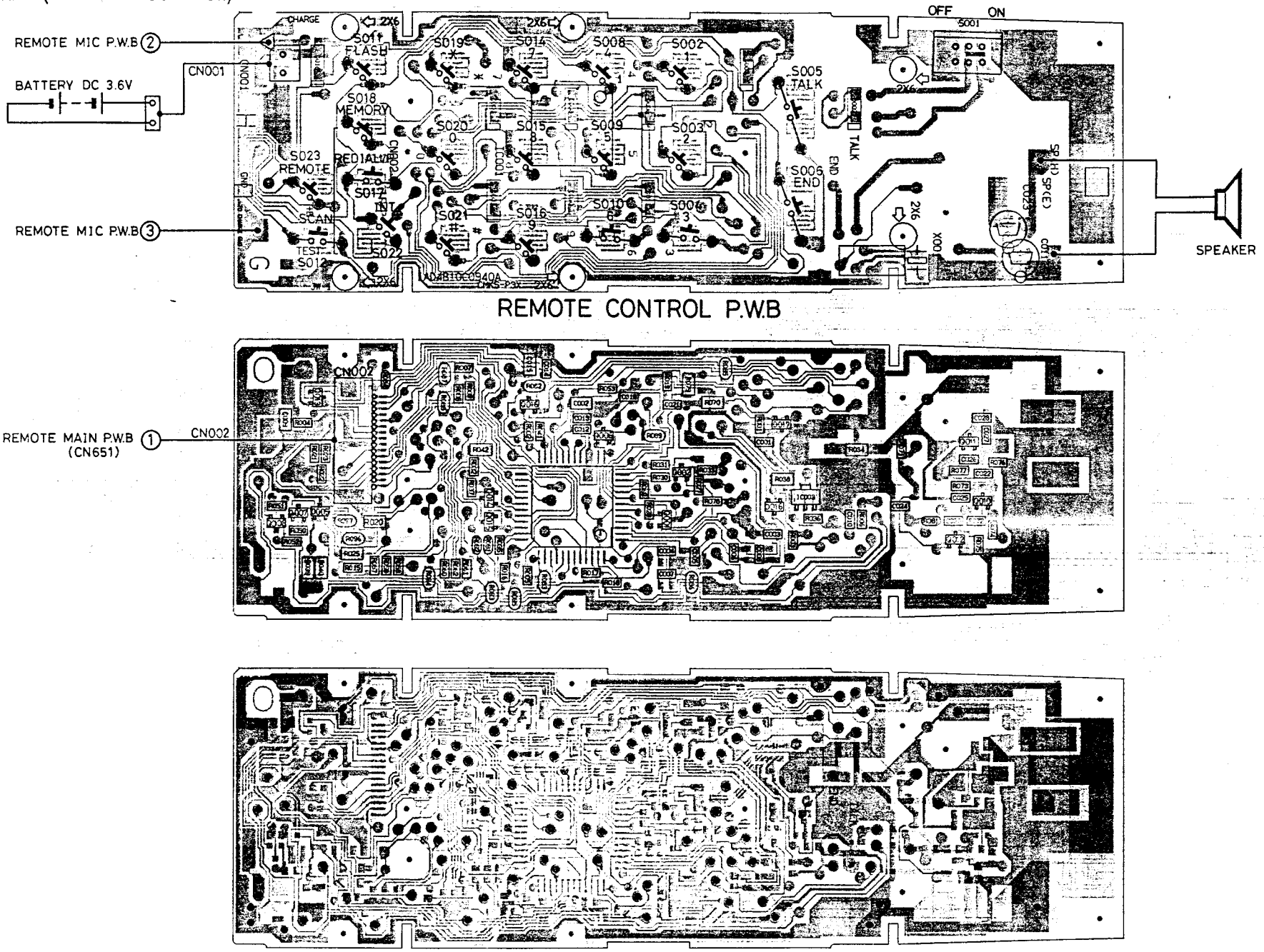
This is a basic schematic diagram.


REMOTE ANTENNA P.W.B
CMKS-P3X
ANTENNA
BUZZER
REMOTE CONTROL P.W.B(CN002)
MIC
REMOTE CONTROL P.W.B
REMOTE MAIN P.W.B
ANT/HOT
MIC HOT
MIC GND
CMKS-P3X
CHARGER
CN655
CN654
REMOTE MIC P.W.B

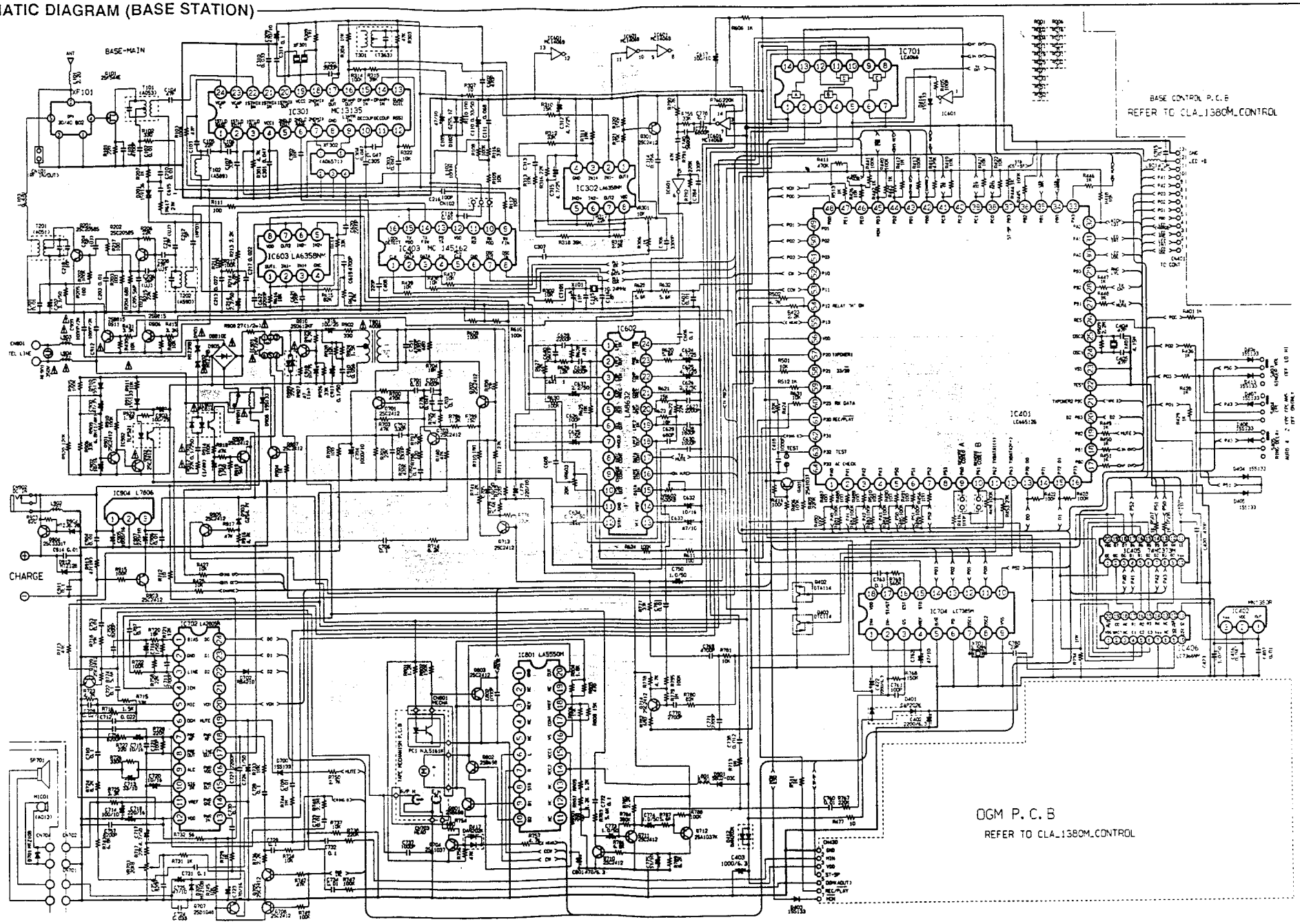
BLOCK DIAGRAM (BASE STATION)



WIRING DIAGRAM (HANDSET - CONTROL)



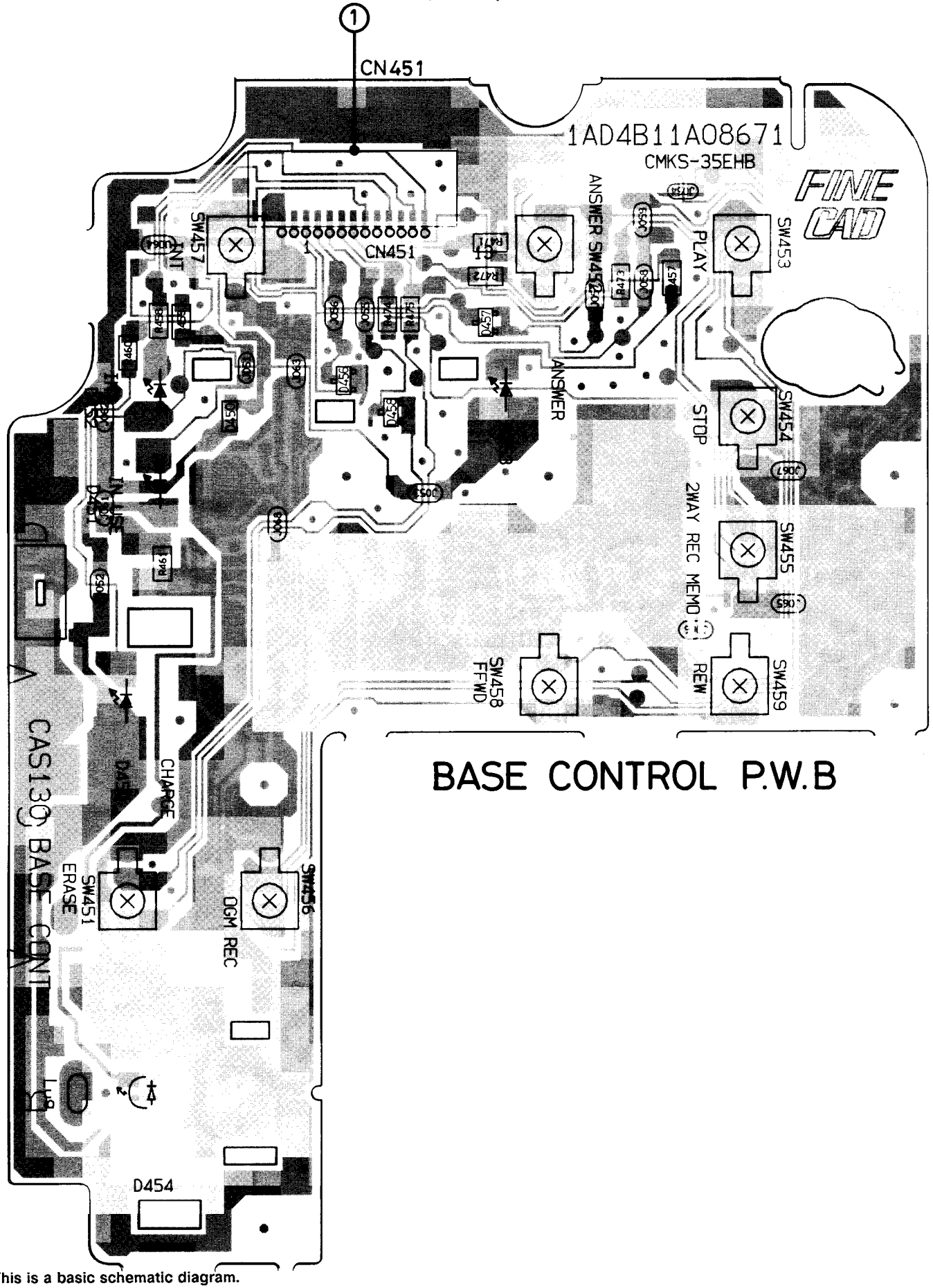
SCHEMATIC DIAGRAM (BASE STATION)



This is a basic schematic diagram.

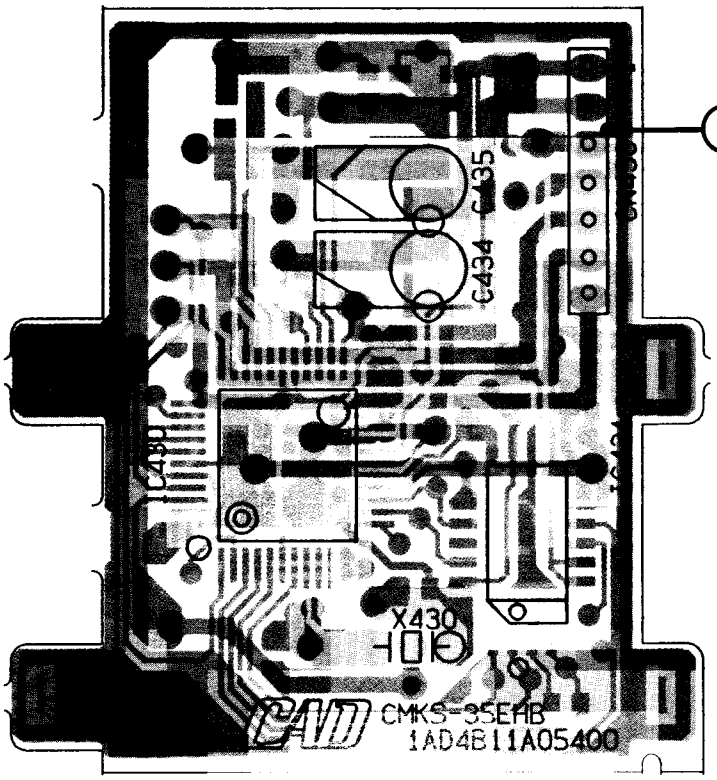
WIRING DIAGRAM (BASE STATION - CONTROL)

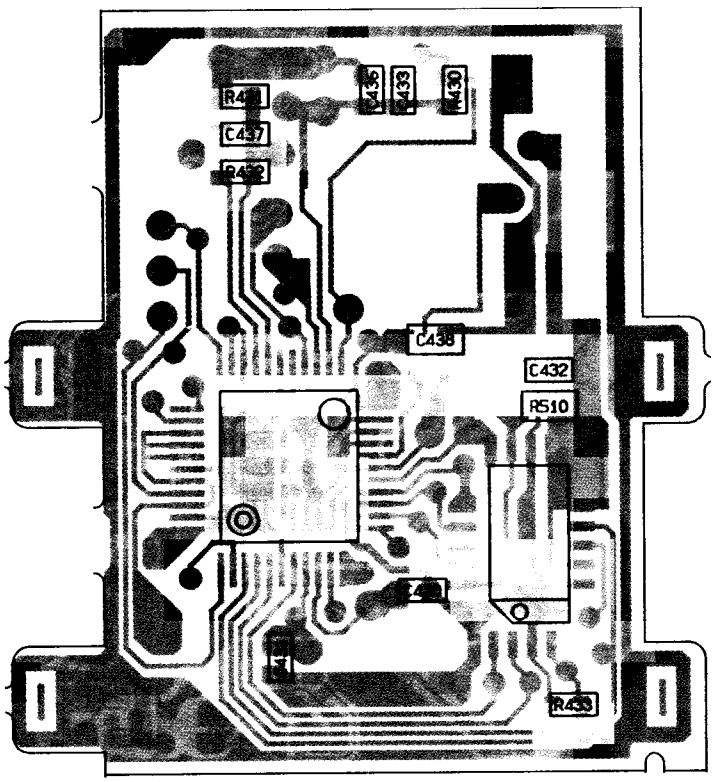
BASE MAIN P.W.B (CN401)



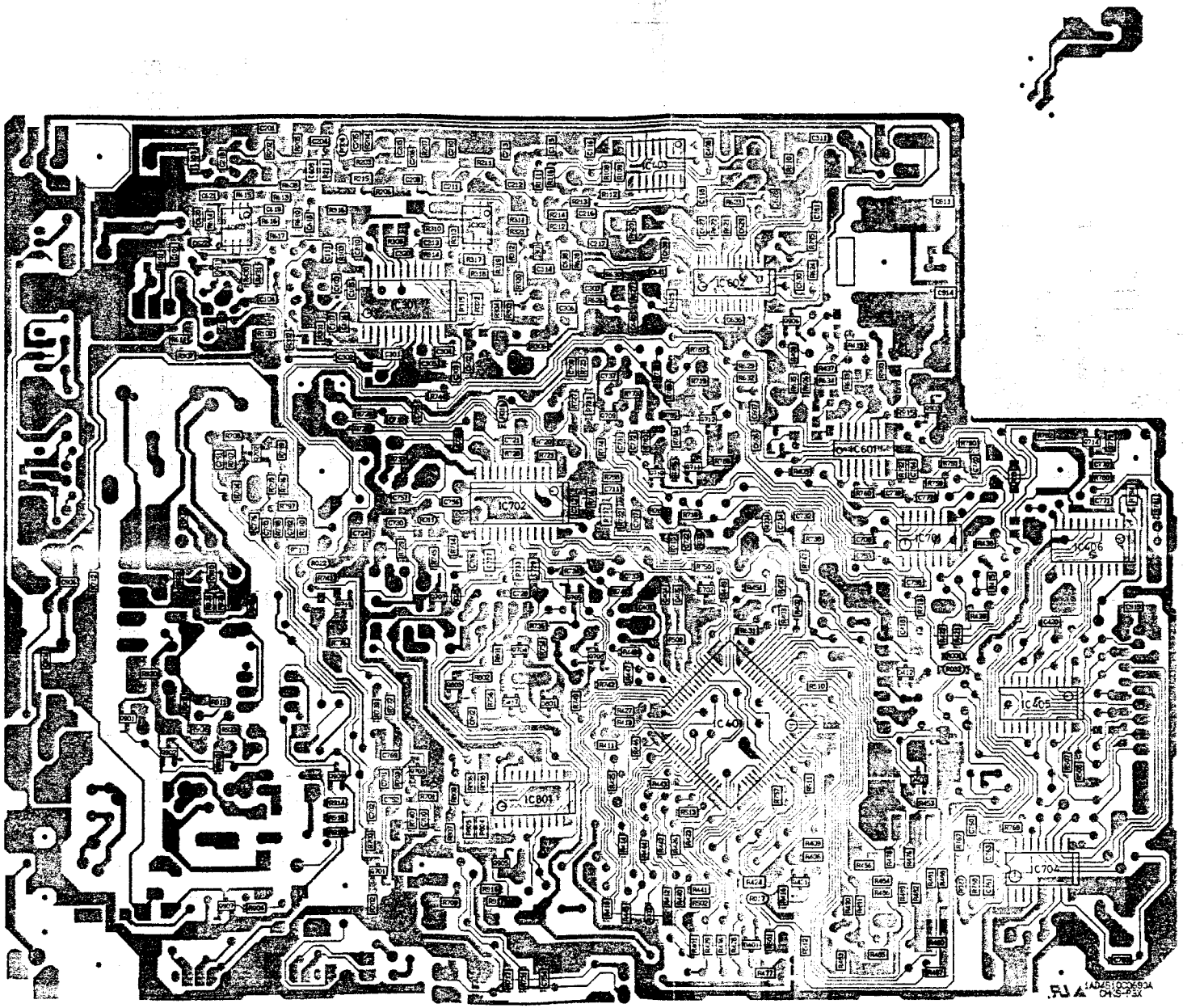
This is a basic schematic diagram.

BASE OGM P.W.B

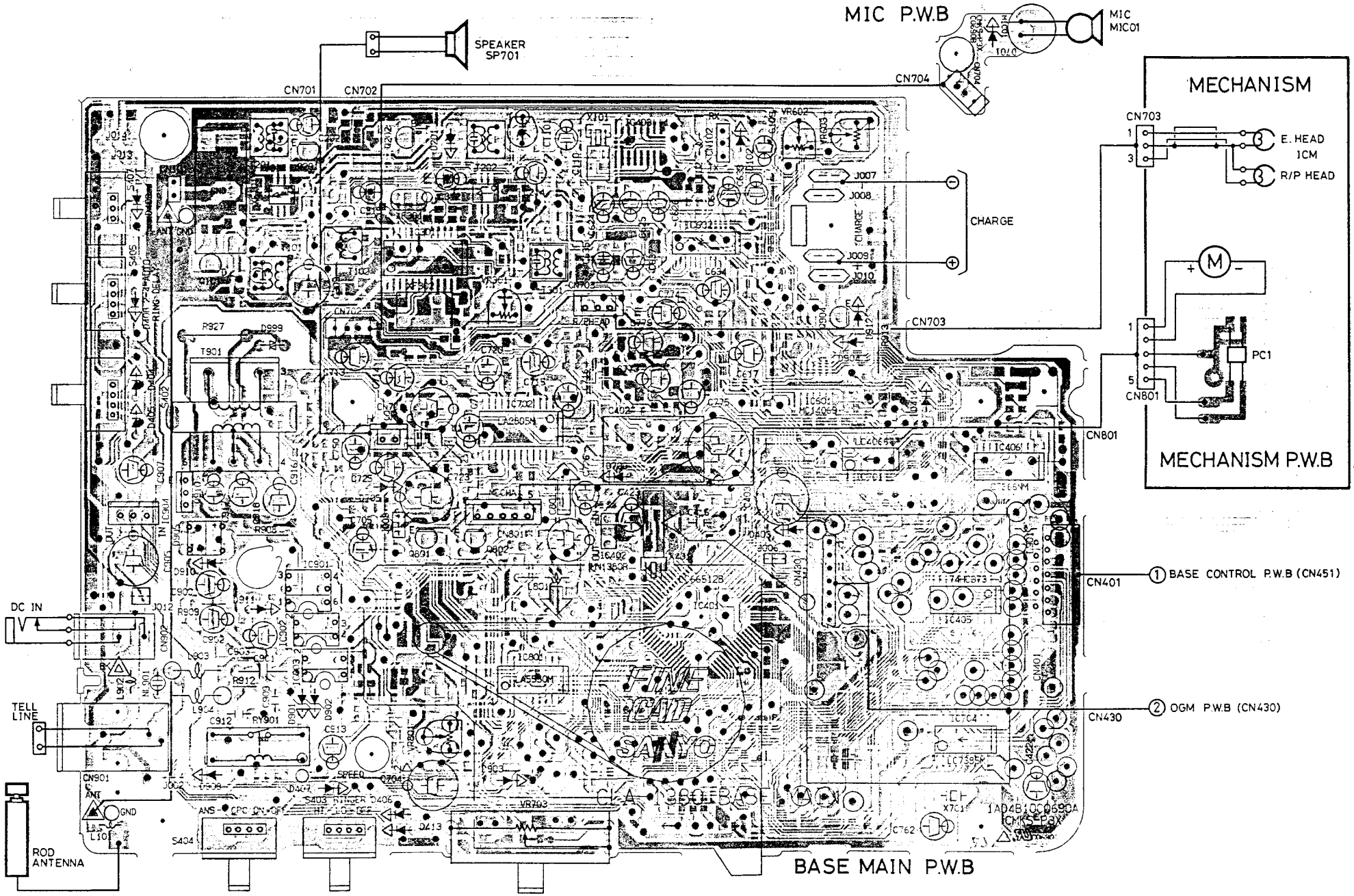


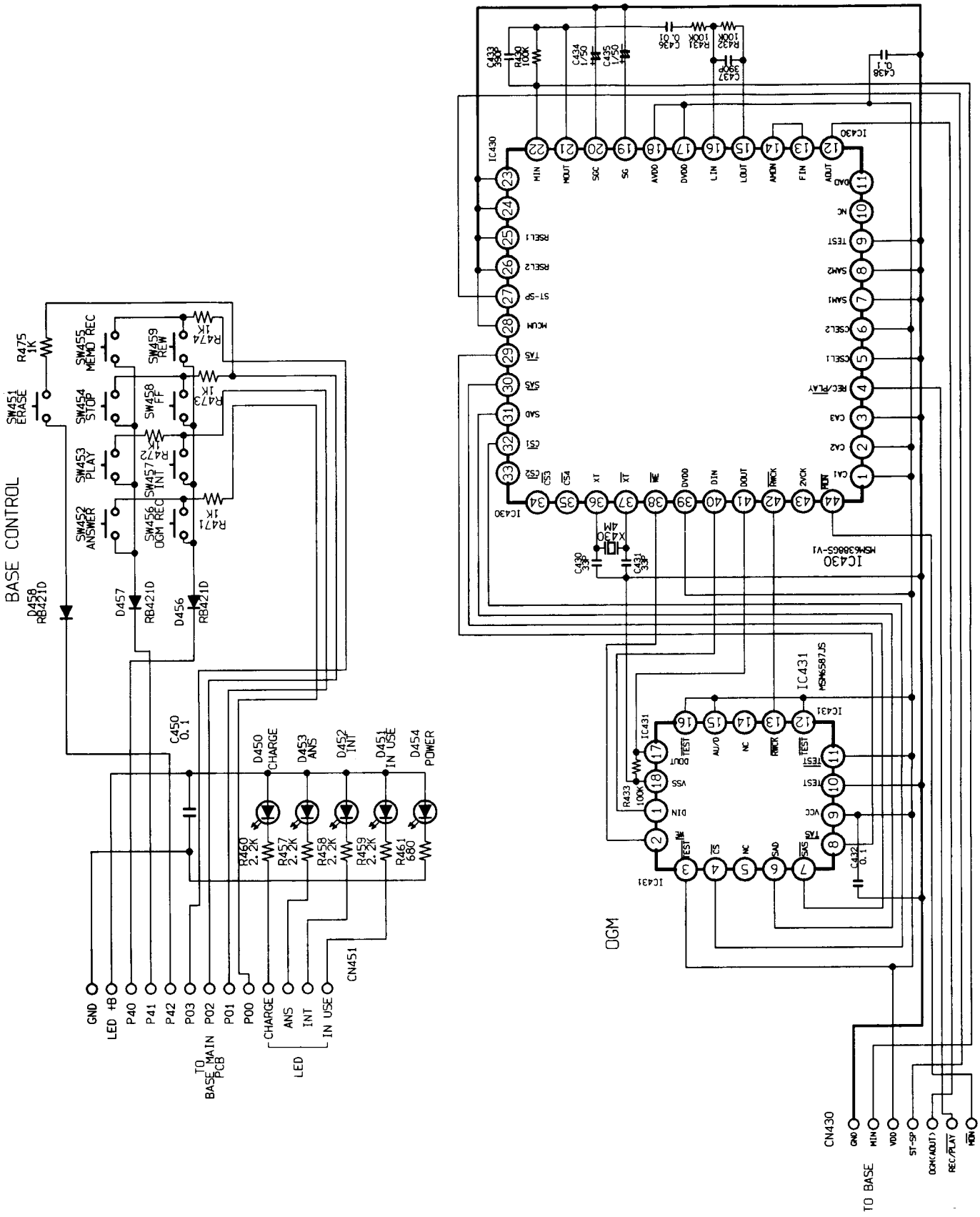


R510 = 0 ohm (Jumper Wire)


IC702
IC801
IC401
IC705
IC704

WIRING DIAGRAM (BASE STATION - MAIN)





This is a basic schematic diagram.

VOLTAGES OF IC & TRANSISTOR

Unit : Volt

TRANSISTOR

Transistor No.	Q803			Q901			Q902			Q903			Q904		
Measuring Pin Name	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
TALK MODE	0	0	0.6	0	0	0.6	0	3.8	0	0	5.1	0	7.7	10.7	8.1
PLAY MODE	0	Flash	Flash	0	0	0	0	0	0	0	4.8	0	7.7	9.7	7.9

Transistor No.	Q905			Q906			Q907			Q909			Q910		
Measuring Pin Name	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
TALK MODE	0	0	0.5	5.8	5.8	5.1	0	0.1	0.7	0	0	0	1.3	3.3	1.9
PLAY MODE	0	0	0.6	5.9	0	5.9	0	9.8	0	0	5.2	0	0	0	0

Transistor No.	Q911		
Measuring Pin Name	E	C	B
TALK MODE	5.8	5.8	5.1
PLAY MODE	5.9	0.4	5.9

SANYO

SANYO Electric Co., Ltd.
Osaka, Japan

Apr./'95/100 NS Printed in Japan.